THE

Journal of the American Medical Association.

EDITED UNDER THE DIRECTION OF THE BOARD OF TRUSTEES.

PUBLISHED WEEKLY.

VOL. XVI. CHICAGO, MAY 16, 1891. NO. 20.

ADDRESSES.

UPON THE USE OF THE ELASTIC LIGATURE IN THE SURGERY OF THE INTESTINES.

The Chairman's Address, delivered before the Section of Surgery and Anatomy at the Forty-second Annual Meeting of the American Medical Association, held at Washington, D. C., May, 1891.

BY THEO. A. McGRAW, M.D.,
OF DETROIT.

Gentlemen:—Under the regulations now in force in the American Medical Association, provision is made for two addresses on Surgery, one by a gentleman appointed for the purpose, before the general body of the Association, and the other for delivery before the Surgical Section by its chairman.

It was evidently the design of the Association in adopting this order of exercises, to have the morning address devoted to the general subject of Surgery—its history, its progress, its present condition and its relations to general medicine. The reason of the second address is not so obvious, but it is natural to suppose that, as provision has been made for a general address before the entire Association, it was meant that the one held before the Surgical Section should be more special and technical in character. Indeed, it would hardly seem proper or advisable to consume the time of this body of experienced and learned surgeons, in rehearsing what every one is familiar with, the changes which have taken place in our art during the past year, nor in discussing themes of general interest which have been worn threadbare in the countless meetings of this and other societies. For these reasons, I have on this occasion chosen, for the topic of my address, a subject that is limited in scope, technical in character, and of particular interest only to operating surgeons.

In common with many American surgeons, I have been intensely interested in the surgery of the intestines. It is well known to you all that the impulse which turned the attention of the profession in the United States in this direction was given by the now famous labors of Dr. Senn, the importance of which is to be measured, not alone by the value of the operative measures which he introduced, but also and even more by their influence on the professional mind, not only in America, but all over the world. For his experiments in a field at that time very little cultivated, served to place procedures, which had previously been regarded as odd and experimental, on a sound pathological basis, and we began to perceive a real therapeutical value in operations which most surgeons had regarded as of doubtful propriety. The operation for intestinal anastomosis introduced by Wölfler and practiced to a limited extent by German surgeons, had not, in this country and England at least, become recognized by the profession, until Senn had simplified its methods and demonstrated its usefulness. Since the publication of his papers on that subject, great activity has been manifested by American surgeons both in operating and in improving the technique of the operation. In fact, I fear that some in the profession have become a little weary of the constant recurrence in our periodical literature of papers on modifications of Senn's operation for intestinal anastomosis. I shall nevertheless, at the risk of adding to this weariness, ask your attention to-day to a new operation, which I have devised for this purpose, and which I believe will prove of superlative value, in a limited class of cases. The reasons for endeavoring to modify the established operations will be apparent to every surgeon experienced in this kind of work. The operation for intestinal anastomosis is indicated: 1. Wherever there is a chronic stenosis of the gut, such as we find in cancer of the pylorus, or small or large intestine, or in cicatricial contraction from injury or ulceration, which cannot be otherwise radically cured. 2. Whenever there is acute obstruction that cannot be relieved by any other procedure, such as sometimes occurs in volvulus or in entanglement of the gut with Meckel's diverticulum, or in that kind of obstruction recently described by Prof. Kundrat,[1] of Vienna, in which the duodenum is compressed by the mesentery of the small intestines; and 3. In some cases of gangrenous hernia, false anus and intestinal fistula.

In the vast majority of all these cases, the patient comes to the operation already exhausted, with a vitality so low that even a long continuance of the anæsthesia becomes a source of dan-

[1] Wiener Med. Wochenschrift, No. 8, 1891.

ger. For that reason the operation for intestinal anastomosis is one that demands all possible speed. It may be truly said that its danger is in direct proportion to the time occupied in its performance. The longer the patient is under the anæsthetic the greater the danger from vomiting and exhaustion. The longer the intestines are exposed to the air the greater the danger from shock and the greater the liability to bacterial infection. It becomes important, then, to devise plans of operation which will occupy the very least possible time. Whatever plan may be adopted the rapidity of its execution will depend, of course, largely upon the personal equation of the operator. I have experimented with various methods, and find that the time occupied in making an anastomosis after the intestines have been exposed and brought out on to the abdomen, by the old method of incising the intestines and uniting their cut edges by a double row of sutures, is from twenty-five to thirty minutes, and by Senn's method from fifteen to twenty-five minutes, according to the good fortune of the operator in keeping the many needles and threads from becoming entangled. I believe that these figures will represent pretty accurately the time consumed in the process by the average operator, if he have any experience whatever in this particular kind of work. Operators of exceptional skill might accomplish it in much less time, while those who had not previously qualified themselves by practicing on the lower animals would require a much more generous allowance of time. There can be no doubt that the reduction of this time by ten or fifteen minutes would in many cases make all the difference between life and death—success and failure.

Besides the dangers which result from the time consumed in the operation, there are others which are caused by the operation itself. One of these is the escape of the contents of the intestine into the abdominal cavity, either at the time of operation or afterwards from defects in healing. How serious this danger is the history of operations on the intestines will show. This source of danger is common to all those methods of operating in which the junction of the intestines is preceded by incision into their cavities. Still another danger is that of hæmorrhage from the cut walls of the gut. While this danger is not great if the operator cut in the middle line of the convex border of the intestines, as far away as possible from the mesentery, yet there are cases of unusual vascularity in which the bleeding may be serious, not so much from the difficulty of its control as from the expenditure of time required in accomplishing it. To perfect this operation, then, we must devise some means by which the difficulties and dangers of our present methods may be lessened or avoided.

On considering the matter it seemed to me that if some method could be invented by which the junction of the intestines could be effected before the formation of the opening of communication between the two coils, two of the especial dangers, viz.: that of hæmorrhage and that of fæcal extravasation, might be altogether eliminated, and that possibly the duration of the operation might also be much lessened. My first thought was of a metal clamp with two thin arms connected with a hinge and furnished with a strong spring. The two arms were to be thrust through the opposing intestines and then brought sharply together with the spring. In this way I thought a force could be brought to bear upon the intestinal wall which would gradually cut its way through, while adhesive inflammation was binding the outer surfaces together. I believe, still, that this could be done to advantage, but some practical difficulties in procuring the desired instrument, led me to abandon it temporarily for another and more simple contrivance, which thus far has acted admirably in my hands, and that is the elastic ligature—and this is the theme of my paper to-day, "The use of the elastic ligature in the surgery of the intestines." The value of the elastic ligature in cutting through inclosed tissues has long been known to the profession in connection with the treatment of fistula in ano, of piles, and small polypoid tumors of the rectum and skin. In 1884 Dr. J. McF. Gaston, of Atlanta, Ga., used it and other forms of ligatures in experiments on dogs which had for their purpose the establishment of a fistulous opening between the gall bladder and duodenum. Later still Lücke had used it successfully for the removal of a pedunculated cancer of the liver.

I learned very recently from Professor Dr. Helfenrich, of Greifswald, that some experiments had been made by Dr. Franz Bardenheuer, at present an assistant in Professor von Bergmann's clinic in Berlin, which had for their object the production of intestinal anastomosis by the use of an elastic ligature, and through his great kindness have been enabled to secure a copy of Dr. Bardenheuer's paper from the author himself. The paper is entitled "Experimentelle Beiträge für Abdominal Chirurgie," J. Dietz and Baumsche Druckerei, 1888, and states the results of many experiments similar to my own. His method, however, was materially different from mine, and consisted in connecting the intestines together by three or four rubber ligatures, which were joined together in loops like a chain, each loop containing about 1½ centimetre of tissue. He, also, evidently ignorant of Dr. Gaston's previous experiments, operated once successfully on a dog by the same method, for the production of an anastomosis between the gall bladder and duodenum. These experiments of Dr. Bardenheuer do not seem, thus far, to have borne any practical fruit. Without knowing of any previous ex-

periments with the elastic ligature, I began myself to experiment with it during the early part of the summer of 1890, hoping in this way to find a means of accomplishing the desired end of producing an anastomosis with previous adhesion of the intestinal surfaces. In my experiments, I tried three kinds of ligatures. One, a large, round rubber cord 4 millimetres in diameter, was speedily discarded. It was too large, was clumsy to tie; when tied it took up too much room and tore too big a hole through the intestinal wall. A second consisted of a flat rubber band 3 millimetres in width. This proved to be serviceable and can be advantageously used if the third variety cannot be obtained. The third kind, a rubber cord 2 millimetres in diameter, is that ordinarily used for the ligature of piles. It could not, for some reason, be obtained for my first experiments, but is to be preferred to all others on account of its smoothness, elasticity and great tenacity. By shaving the end of the rubber thin it may be drawn through the eye of a so-called worsted needle (a needle with a long eye) smaller than itself. This is a decided advantage for the reason that it is important to make as small a hole as possible through the intestinal wall, and also to have the ligature not only completely fill, but even to distend the hole so as to prevent any extravasation of fæculent fluid. Now, by stretching the rubber during its passage and rendering it thin and small, it may easily be drawn after the needle, and its subsequent contraction will then largely increase its size and cause it to more than fill the orifice. The ligature in the most cases was passed through the gut in the direction of its long axis and at points most distant from the mesenteric attachment. Before passing it the bowels were stitched together by from three to six Lembert stitches, and afterwards similar stitches above the ligature served not only to give additional protection but also to bury the rubber in the intestinal folds. Usually an inch or more in length was included in the ligature. After the cord had been drawn through both coils of intestine it was tied as tightly as possible in a square knot. Although this knot will ordinarily hold without further fastening, yet as I wished to cut the ends very short in order to cause as little peritoneal irritation as possible, I always secured the ends so as to make slipping impossible. At first I did this by running a fine needle threaded with silk through the ends and thus tying them together, but as this procedure was awkward and consumed much time, I later on adopted a suggestion of my student, Mr. Hickey, and secured the knot by tying a silk thread, which was laid under it, first over the first turn of the knot and afterwards over the completed knot. This consumed almost no time and fastened the rubber securely against the possibility of accident. In making the knot, the ligature should be drawn as tightly as possible without breaking.

The first effect of the ligation was to draw the intestines together into folds, and I was not a little apprehensive at first, lest these folds, agglutinated together, might be fixed in a permanent corrugation. In this I was agreeably disappointed. Examination of the intestines, even after so short a time as twenty-four hours, and before the ligature had made any perceptible progress in cutting through, would find these folds in process of obliteration. In some way the intestine accommodated itself to its new conditions and became speedily smooth and shapely. In some respects the early disappearance of these corrugations has been quite a puzzle, as I should have expected them to remain until the intestine was released from the binding cord. I feared, too, lest the ligation and folding of the intestinal wall might cause irritation or even obstruction of the gut. When we consider, indeed, the severity of the symptoms produced by the pinching of even a small segment of a gut in strangulated hernia, we might reasonably expect the occurrence of similar phenomena, with the extreme pinching of two adjacent intestines held together by a tightly drawn rubber ligature. This, however, never happened. Obstruction occurred in one or two cases from a too acute bending of an intestine, but the ligation itself seemed in no case to produce distress—even in gastro-enterostomy, where the involvement of the stomach in the ligature might warrant fears of an uncontrollable gastric irritability, this did not occur. The man upon whom I operated by forming a gastro-intestinal enterostomy for the relief of a pyloric cancer, vomited only once after the operation, namely, on the third day.

It is evident that the mere pinching or constriction of a portion of the intestinal wall is not in itself a cause of great irritation, provided the nutrition of the gut is not seriously interfered with. In fact, the symptoms which followed the operation seemed in no case to depend merely upon the injury done to the intestine. If the wound ran a perfectly aseptic course, the animals would show no distress whatever. If it became septic they would suffer accordingly. Every one who has operated on dogs, knows the difficulty of making and keeping them aseptic, especially in confined quarters. From lack of proper facilities I lost several animals from septic peritonitis. It was noteworthy, that the origin of trouble was rarely to be found at the seat of ligature or connecting with the cavity of the intestine, for the ligature, in fatal cases, was almost always found buried in the intestinal fold and progressing its usual course, while the distant peritoneal surfaces were covered with lymph or pus. In no case was there found any escape of fæces or intestinal contents into the peritoneal cavity.

The normal course of the ligature and inclosed tissues, was about as follows:

Animal killed after twenty four hours, showed no change in the condition of the intestines operated on, except a partial obliteration of the folds caused by the ligature, and an adhesion of the adjacent peritoneal surfaces. No opening became as yet apparent at the seat of ligation. After forty-eight hours the intestines resumed their normal shape, all folds had disappeared, the adhesions had become firmer, and the rubber was seen to have slightly cut through the inclosed structures. At the end of seventy-two hours a free space usually appeared on each side of the ligature, through which water could be made to pass from one intestine into the other. The ligature still hung in the middle on uncut tissue. At the end of the fourth day, the opening became complete, the ligature disappeared and the anastomosis was accomplished. As the ligature cut through, the edges of the mucous membranes of each gut became glued together and united, and the result was a smoothed, healed edge all around the opening. The irritation caused by a rubber ligature in the peritoneum was just sufficient to cause adhesion of the surfaces with the intervention of hardly any appreciable amount of exudation. The length of the orifice formed was found to be equal to that of the tissue inclosed in the knot. Whether subsequent contraction with partial obliteration of the orifice, such as has happened after other methods of producing anastomosis would follow in course of time, is as yet uncertain. Variations were occasionally found in the course described. I have seen the opening completed at the end of the third day, and have seen it incomplete at the end of the fifth, but in general if the operation is done as I have described it, the result will be as I have stated.

In my first series of experiments I operated on twenty-four dogs, and then having become convinced of the perfect feasibility of the operation I chose it in preference to other methods, when called upon to establish an anastomosis between the stomach and small intestine, in a case of pyloric cancer.

Subsequently, seven dogs were operated on for the purpose of studying the effects of the operation in relieving intestinal fistulæ and false anus, and eight others, for the production of fistulæ between the gall-bladder and small intestine. The history of the only case in which this method of operation has been thus far employed on the human subject is as follows:

Mr. Otto Cook, aged 59 years, a Belgian by birth, and a farmer by occupation, by the advice of his physician, Dr. Jno. Monaghan, since deceased, entered St. Mary's Hospital on January 8, 1891, to place himself under my care for cancer of the pylorus. He had been perfectly well until three years ago, when he had begun to suffer from indigestion and occasional attacks of vomiting. The trouble gradually increased until he found himself during the last three months unable to retain any food whatsoever. He became gradually very weak, and at the time he entered the hospital was much emaciated. His breath was foul, and his food was vomited regularly a few hours after its ingestion. Examination revealed a tumor as large as a hen's egg, four centimeters above and four centimeters to the right of the navel. This tumor was immoveable, and was evidently adherent to the adjacent structures.

January 9. The stomach was washed out with warm water and a large quantity of very sour, dark and offensive fluid mixed with mucus evacuated. After the hot water, a solution of boracic acid and bicarbonate of soda, eight grains of each to the ounce was injected and again evacuated. The patient experienced immediate relief from the nausea, and the procedure was repeated daily until January 12, the day of operation. As the diagnosis was not doubtful, the examination for hydrochloric acid was not made. The temperature during the time of his stay in the hospital previous to the operation ranged high, from 99.5° to 100.5° F. His pulse was steady at about 90 per minute. His bowels had been costive but were made to act by enemata, and rectal injections of bovinine and brandy were given three times a day, to supply the much needed nutriment.

There were present at the operation Drs. H. O. Walker, F. W. Robbins, Pilcher, Irving, Monaghan and Mr. P. M. Hickey, Mr. A. J. Warren, and others. An incision was begun four centimeters above the navel, in the median line, and extended transversely to the left, for a distance of four inches. The pylorus was found to be as expected, the seat of a large tumor, adherent to the liver and absolutely immoveable. Excision was out of the question and I proceeded to make an anastomosis with the small intestine. I tried first to find the jejunum by grasping it at its origin but failed to do so, and then followed Lücke's advice and grasped the highest coil of small intestine. As will appear later I had cause to regret this part of the operation. The omentum was very thin, atrophied and destitute of fat, and was pushed to the left. A small opening through its right border enabled me to bring the stomach into contact with the intestine, which was then sewed fast to it by six Lembert sutures in a line about four centimeters in length. A long worsted needle, armed with a long rubber cord, was then passed into and out of the stomach, the included space being about three and a half centimetres in length. It was then carried in like manner through the intestine and the ligature tied tightly and firmly in a square knot. The ends of the ligature, which were cut short, were

then secured by tying them together with a silk thread, which had been passed through them, and six Lembert sutures were inserted above. The stomach and intestine were thus fastened together by two rows of Lembert sutures, and by the rubber ligature which was between them and hidden from view, while the walls of the viscera were held by the ligature as in an ever tightening vise. The operation of anastomosis was conducted in this case very deliberately, and consumed after the exposure of the stomach eleven minutes of time. The most of this was occupied in passing the fine needle armed with the silk thread through the rubber in order to secure its ends. This is quite a delicate matter as the needle must be passed directly through the middle of the stretched rubber in order not to cut and weaken it as it would do if passed too near its edge. Since adopting the suggestion of Mr. Hickey, and securing the knot by tying the silk thread firmly around it, I have been able to materially reduce the time required for the procedure, and can now do it on the dog in less than three minutes.

The peritoneum, fascia and muscles, and skin were sutured separately, and the wound dressed with usual regard for asepsis. The patient reacted well and was given injections of bovinine and brandy every six hours.

January 13. Injections continued. Temperature as before the operation ranging from 99.5 F. to 100.5 F. Pulse was stronger than before the operation. Patient had a tendency to slight hacking cough, no nausea, nor vomiting, nothing was given by the mouth.

January 14th. No pain, tenderness, nausea nor tympanites. Injections of bovinine, brandy and tincture opii every four hours, mouth and tongue moistened with water, but no food nor drink. Morning temperature 100.5; evening temperature 103.8. Ten grains of quinine in half an ounce of whiskey were given by mouth and retained.

January 15th. Morning temperature 101°; evening temperature 100.°; pulse 90 and good but patient felt very weak. The mouth and throat were dry and the cough troublesome. No expectoration, negative results on auscultation and percussion, complained of acidity. Is given teaspoonful doses of wine and water every fifteen minutes. For the first and only time since the operation, the patient vomited a mucus mixed with wine and water; the stomach was washed out with the boracic acid solution.

January 16th. Morning temperature 100°; evening temperature 101°. Patient retained milk, bovinine and wine in small quantities. Bowels moved at noon. The stool was thin, dark colored, and offensive. Ligature could not be found, wound was dressed for the first time and found to have healed by first intention. Bowels moved three times on the night of January 16 and January 17. Nutrient enemata altogether discontinued; patient is weak and very homesick, and complains bitterly of his cough. Bismuth and saccharated pepsin āā grs. v was given every three hours. Morning temperature 99.5°; evening temperature 100°.

January 17th. Patient seems brighter and stronger. Pulse 90, good. Morning temperature 99°; evening temperature 100°. Milk, beef-tea and brandy are taken by the mouth and retained; no nausea nor distress. Cough is troublesome; bowels moved five times during the day; stitches were removed from wound which was entirely healed. The pyloric lump seems to have decreased in size.

January 18. Morning temperature 99°; evening temperature 100.5. The cough is very annoying, but sounds are clear over both lungs. The cough is aggravated by drinking, but not by swallowing solids. He ate baked potatoes and soft boiled egg for breakfast, also some milk toast, but is dejected and homesick. Bowels moved six times since previous evening. The passages were dark and offensive.

January 19th. Morning temperature 99°; evening temperature 100°; cough much worse, but no expectoration. Mouth and throat are very dry. The throat is red but not swollen, and is covered with a white deposit, which, however, may be easily wiped off. Has difficulty in swallowing liquids but can take solids with ease. Throat was gargled with boracic acid solution. Internally, tincture ferri chlorid, in five drop doses. Bowels have moved seven times since last evening.

January 20th. Morning and evening temperature 100°. Patient is growing weaker and more homesick. Pulse 90, good; mouth is not quite so dry and throat is somewhat better. The pyloric tumor has apparently disappeared. Diarrhœa continues. Twelve passages in the last twenty-four hours.

January 21st. No material change.

January 22d. Diarrhœa continues and patient is growing weaker, but otherwise no marked change.

January 25. The patient insisted on going to his home twelve miles in the country, where he died on January 27, fifteen days after the operation.

On January 28th, I drove out with an assistant and succeeded in getting permission to examine the abdomen. It was found that the healing had taken place with absolute asepsis, the wound was firmly and completely united. There was no inflammatory exudate whatever in the abdominal cavity. The viscera all had their normal appearance except at the seat of disease. There was a pyloric tumor as large as a hen's egg firmly adherent to the under surface of the liver. In the mesen-

tery underneath there were numerous enlarged lymphatic glands. The stomach and underlying intestines were adherent by what may be called primary adhesion; that is, their surfaces were attached without any apparent deposit of lymph. I had feared on watching the case that I might have made the anastomosis too near the ileo-cœcal valve and in order to determine the exact position of the operation, I was obliged to separate the stomach from the surrounding mass. I found that the seat of anastomosis in the small intestine was about 91 centimeters (three feet) from the colon. The intestine above that point was empty; below it full of partly digested food. The cause of death was evidently inanition. In tracing out the intestine I unfortunately tore it partially apart from the stomach and thus spoiled the specimen. I found, however, that the anastomosis had been complete. In the stomach there were two holes through the mucous membrane and one through the muscular and serous coats. It was evident that in passing the needle into the stomach I had passed it too near the wall of that organ, and instead of clearing the mucous coat had pierced it, altogether, in four places, which made, on the completion of the anatomosis, two holes. This seemed to cause no difficulty in the passage of food but it taught me to enter the needle, in the future, into and to pass it out of the stomach more perpendicularly to the surface. In this way all such complications may be avoided. The orifices in the intestine and serous and muscular coats of the stomach were three and a half centimeters, (one and a half inches) long. That in the mucous coat of the stomach was as I have said divided in two by a small bridge of mucous membrane. It must be observed that neither in the stomach nor intestine nor peritoneal cavity was there the slightest appearance of inflammation. The edges of the opening between the cavities were healed and the mucous membrane of the small intestine was turned around the edge of the orifice and attached. The mucous membrane of the stomach, owing to the faulty course of the needle through it was stretched over the orifice and communicated with it by means of the two openings.

Although in transcribing this history I have not taken up space in relating unnecessary details of treatment, having given only the essential points, enough is nevertheless given to show conclusively that it is entirely practicable to produce intestinal anastomosis on the human subject by the elastic ligature. The failure of the operation was due, not to the method of making the anastomosis, which was highly successful, but to the misfortune of establishing it too low down in the ilium for the purposes of nutrition.

I wish to call especial attention to the following points:

1. The operation caused no irritability of the stomach. He vomited only once after its performance, viz., on the third day after the operation, before the ligature had cut through.

2. The duration of that part of the operation, the uniting of the viscera and the formation of the anastomosis, was only eleven minutes, notwithstanding that it was done with more than necessary deliberation on account of its being the first case. It was, besides, unnecessarily prolonged by the method then adopted of fastening the ends of the ligature by transfixing them with needle and thread and then ligating. The method now adopted of securing the knot by simply tying a silk thread around it, will save many minutes.

3. Food began to pass from the stomach into the intestines at the end of the fourth day as shown by the complete tolerance of the stomach after that time. The accident of transfixing the mucous membrane of the stomach by carrying the needle too nearly parallel to its surface, made the orifice in that mucous membrane smaller than it should have been and may have delayed the establishment of the communication between the stomach and intestine.

4. The autopsy showed the anastomosis to have been completed with a minimum amount of irritation. I doubt whether it would be possible by any other method to produce so little disturbance.

Now, if we ask how far this method will meet the necessities caused by the various pathological conditions which produce intestinal stenosis, we will be enabled to come to a definite conclusion as regards its usefulness. It will be seen on consideration that like all surgical procedures, the method has its strict limitations. That which limits its applicability is the time which is required for the completion of the anastomosis. All cases of stenosis, therefore, which demand immediate relief or which must be relieved in less time that four days, must be treated by other methods, while on the contrary all cases of partial stenosis or even, as regards pyloric tumors and cancers, of complete stenosis in comparatively strong patients, may be operated on to advantage by this method. To particularize: the acute stenosis of volvulus or entanglement of Meckel's diverticulum with the intestine, or that caused by constriction by false membranes or by strangulated hernia or by intussusception, must be relieved by other means. In many of these cases an incision into the bowel which permits the escape of contained fæces is a necessary part of the treatment and for all these, Senn's method or some one of its innumerable modifications would seem indicated. But in obstruction of the pylorus, when the patient has a fair amount of strength; in tumors of either intestine with partial obstruction; in the partial stenosis caused by wounds and injuries, in the narrowing of the gut by cicatricial contraction; in operations for the cure of false

anus and fæcal fistulæ, and, finally, in impending mortification of the intestine in strangulated hernia, I believe that it will be found on trial superior in its ease of application, freedom from danger and efficiency, to any other method now in vogue. In tumors either of intestines or of neighboring parts pressing upon or involving the intestine, the symptoms of obstruction come on gradually. In all of these cases, early operations are indicated either for excision of the whole trouble, or if that is impossible for relief of the stenosis. In either case the production of anastomosis by ligature is especially indicated—in excision, after the tumor has been removed, the gut evacuated and the resected ends turned in.

Wounds of the large intestine are much more apt than those of the small, to give way and permit fæcal extravasation. The thickness and comparative stiffness of its walls make a greater strain upon the Lembert stitches which hold the serous surfaces in contact, while the fæcal masses, by their greater solidity, produce more friction in the bowel and a more prolonged and powerful impact upon the inner line of the wound. In the large intestine then it is especially desirable that the outer surfaces should grow together before the anastomosis is formed, and for that reason the operation by elastic ligature would seem to offer marked advantages over other methods. The lapse of four days before fæcal matter could possibly exude, and during which the agglutination of the serous surfaces would become firm, would add no little to the security of the patient.

The advantage of the method in another class of cases, that of traumatic stricture of the small intestine, has forced itself upon my attention as I have compared the results of my operations on dogs with the history of a case of resection of the gut for traumatic stricture which occurred in my own practice. The case has already been published in the *Physician and Surgeon* for June and July, 1890, and I will give here only a résumé of it in illustration of the advantages promised over the old methods by the new one which I have suggested. On January 13, 1889, Barnard Burns, age 28 years, was struck violently in the abdomen by a falling log. Great pain, tenderness and tympanites ensued and lasted for three or four weeks. There then developed, gradually, a cicatricial contraction of the jejunum with its accompanying symptoms of partial obstruction, namely repeated attacks of great colicky pain with irritability of the stomach, and finally fæcal vomiting. I operated on him on May 30, 1889, four and one-half months after the reception of the injury. I found the jejunum at one place contracted to such a degree that a lead pencil could not have been passed through it. The intestine had evidently been badly bruised, but not completely ruptured. Possibly one or the other of its coats had undergone ulceration and absorption as the effect of the injury. I excised three inches of the bowel and joined the ends together with a double row of stitches, one for the mucous membrane and one for the muscular and serous coats. A contracted point in the mesentery which seemed to cause too much flexion of the intestine was also excised and reunited in a different way so as to relieve the flexion. The operation lasted one hour and a half, two-thirds of which time were occupied in the section and suture of the intestine. At its close he suffered greatly from shock, from which he did not recover until after the expiration of thirty-six hours. After that, he recovered without any further drawback.

What I wish to emphasize in this history is the fact that this patient was put in imminent danger of his life by the shock produced solely by the length and severity of the operation although everything else went well. In treating such a case again, I should first of all thoroughly and repeatedly wash out the stomach. This procedure has been shown, repeatedly, to relieve all of the symptoms of even acute and complete obstruction without, of course, curing the disease. The stomach and small intestine are thereby put in the same condition as the stomach in pyloric obstruction. The canal to the point of obstruction is emptied of all its contents, and the pain and intestinal tenesmus ceases as soon as the gut is allowed to rest. The reversed peristaltic action in these cases assists the surgeon in his efforts to relieve the intestine from the exhausting and futile efforts to force its contents beyond the point of constriction. Whether the small intestine could be thus relieved at whatever point in its length it should be constricted is yet to be seen. It is of undoubted service in constriction of the higher parts of the alimentary canal. In partial obstruction the relief given would doubtless be sufficiently great to permit the surgeon to treat the case on the same principles as in pyloric cancer, namely, to keep the mucous surfaces clean by frequent irrigation; to give by the mouth no food or drink at all or, if any, only such as could undergo immediate absorption; to nourish the patient by rectal enemata, and to reëstablish the continuity of the bowel by forming an anastomosis of the part above with that below the stricture.

If I had, instead of excising the gut, passed an elastic ligature through the central and distal portions, immediately above and below the constriction, I could have accomplished in a few minutes what occupied a whole hour, and saved the patient the enormous shock to which he nearly succumbed.

Although I have not ventured to recommend this procedure in cases of acute and complete obstruction, I am nevertheless by no means sure that it may not prove to be the best and most promising of all operations in acute and irremedi-

able obstructions of the jejunum and duodenum if the case is operated on early, before the patient has become exhausted. It must be insisted on that all such cases shall be treated, before and after the operation, by the frequent washing out of the stomach with the rubber syphon, and that alimentation shall be accomplished solely through the rectum.

Another class of cases in which this operation may be expected to be of great utility is that which includes gangrenous hernia, fæcal fistula, and artificial anus. It occurred to me in thinking over the various methods of treating the mortified intestine in strangulated hernia that the cure of the false anus which results in such cases might be anticipated by making at once an anastomosis between the afferent and efferent limb of the gut in sound tissue. By passing the elastic ligature through the two portions of gut an orifice of communication would be formed at the end of the fourth day, and with a new channel for the passage of fæces. The false anus would be in condition to be healed with comparatively simple means.

I operated on my second series of dogs, seven in number, with the purpose in view of studying the results of such procedures. The experiments had as yet yielded no practical results on account of the great mortality of the animals from septic peritonitis, when I received the second part of the forty-first volume of the *Archives für Klinische Chirurgie*, containing an article by Prof. Helferich, of Griefswald, entitled "Ausführing der Herniotomie bei der Gangrän verdächtigen Darm," I found myself anticipated in the idea and practice by Prof. Helferich, who had already operated on and recorded two cases of this kind, in which, however, he had made the anastomosis by incising and stitching the intestines together. One of the two cases was successful. Some fæces passed for a few days, in small quantities, through the false anus, although the greater part was evacuated through the rectum. On the ninth day the protruding perforated coil of intestine was excised, and the cut ends turned in and sutured. A small remaining fistula required a further and final operation for its relief. The second case ended fatally in collapse.

I think that every one who considers for a moment the condition of things in a gangrenous hernia will see the advantage of this operation. I should not, however, subject a patient to the long, tedious, and dangerous operation of forming an anastomosis after any of the old methods. In these cases, when once the constriction of the hernia is relieved, the operation by elastic ligature could be accomplished within five minutes It would indeed require four days to establish the communication between the intestines, but the patient could well afford to wait for that when by so doing he could escape the dangers of collapse and shock, to be expected of any long operative procedure under such circumstances.

As for already existing fæcal fistula and false anus, in which milder measures have failed, it would be proper to try the effects of the elastic ligature in either one of the two ways: First of all the ligature might be used to destroy the projecting spur, which in so many cases of artificial anus separates the afferent from the efferent gut. The patient should be put in Trendelenburg's posture, with elevated hips, to permit the intestines to fall away from the seat of operation. The needle armed with the rubber ligature should then be passed as deeply as possible through the spur and tightly tied. The spur destroyed, the case could then be treated on general principles. If the formation of the spur should be such as to render this manœuver impossible, or if the case were one in which no spur existed, the abdomen could be opened and an anastomosis be formed by the ligature between the afferent and efferent limbs of the gut. There can be no doubt that relief might be given in this way to many otherwise incurable troubles of this kind. Besides these operations on the intestine, I made some experiments with the view of making communications in the same manner between the gall-bladder and the small intestine. In doing so I met with difficulties which did not occur in the operations on the intestines. The liver and gall-bladder in dogs, owing to the narrowness of the thorax, is somewhat difficult of access, and the constant, and often violent, motion of the diaphragm as the animal struggles, vomits, or barks, prevents that delicate manipulation which is essential to success. These impediments might, it is true, be overcome by a sufficiently large abdominal incision, but this in turn causes greater danger from shock and septic poisoning. The operations were conducted in the same manner as in intestinal anastomosis, except that the lesser size of the gall bladder made it necessary to include less tissue in the ligature. Whereas in the intestinal anastomosis the thread inclosed from three to four centimeters in length; in the experiments on the gall-bladder and duodenum there were included only one and a half or two centimeters of surface.

Another difference in these operations was the tendency of the bile to escape alongside of the ligature into the peritoneal cavity, an accident which never happened with the contents of the intestine. This was due both to the thinness of the wall of the gall-bladder and the thinness of the bile, and added an additional danger to these operations. Nine dogs were operated on, of which six died. One from intestinal hæmorrhage, one from a flexion of the duodenum, two immediately after the operation, apparently from shock, and two from septic peritonitis. Of the three that lived, one lived sixteen, one fourteen, and one

twelve days before they were killed for examination, and I hoped to prove the operation to be practicable. In this, however, I was sadly disappointed. In two of the three the ligature had disappeared, but the orifice of communication had disappeared with it, and there was nothing left to mark the spot of operation but the scar. In the third the ligature was found in place. It had cut through the intervening tissues, but had been prevented from escaping by the surrounding structures, which had contracted around it and enclosed it. It could not be doubtful that this orifice, too, would have closed like the others by cicatricial contraction as soon as it had been made possible by the escape of the rubber.

I had not, until this time, been aware that Dr. Gaston, of Atlanta, had anticipated me in this kind of work, but learned of the fact from Dr. Senn. Dr. Gaston kindly sent me the papers, excepting the first, which he had published on this subject, beginning in September, 1884. Dr. Gaston endeavored to establish fistulæ between the gall-bladder and duodenum by the use of a ligature, sometimes of silk and sometimes of rubber. The main features of his method were the same as those of my own. The gall-bladder was fastened by Lembert sutures to the intestine, the ligature passed through both viscera and tied, and other Lembert sutures again above and around the ligature. Many of his operations were complicated by the ligation of either the hepatic, cystic or common gall ducts, and in all of them, as nearly as I can judge from the description given, the amount of tissue included in the ligatures was much less than in my own experiments. His very interesting experiments were the first of their kind, and he can undoubtedly claim the priority in the attempts to make channels of communication between hollow viscera by means of ligatures, although I cannot learn that he ever attempted to do so for any other purpose than to make a duodeno-cholecystostomy.

I wish that I could say that either his efforts or my own, had resulted in the establishment of a practicable procedure for this purpose. The results of our experiments in this direction at present, show only this: that it is possible by the use of a ligature to make a communication between the gall-bladder and duodenum which may last for two or three months, but that the procedure is so exceedingly dangerous as to be inadvisable on the human subject. The most of the animals operated on, died, and from causes which we might not be able with all care to avoid. It is exceedingly difficult to prevent the escape of bile into the peritoneal cavity through the hole made by the ligature, and this, although not necessarily fatal, is nevertheless a grave complication, if for no other reason than that it interferes greatly with that union by first intention, which is an essential element of success in this method. Besides, the adhesion of the surfaces, the escape from all fatal complications, and the division of the inclosed structures by the ligature does not insure the establishment of the fistula. In the three cases of my own which lived, the ligature had cut through, but the contraction of the tissues had already, in less than seventeen days, obliterated the orifice, which it had made, although not less than one and a half centimetres of length of surface had in each case been included in the ligature. It is possible that the total obstruction of the cystic or common duct might ensure a greater permanency of such a fistula. In one of Dr. Gaston's cases, the fistula persisted for nearly three months, but it must not be forgotten that the obstruction of the common duct would add greatly to the danger of the operation, as it would cause an enormous distension of the gall-bladder with extreme thinning of its walls, and a constant pressure, which would cause a continuous current of bile through the holes made by the needle and thread, and, if it did not produce a fatal peritonitis, would almost inevitably prevent union between the gall-bladder and duodenum.

I would not be understood as despairing altogether of this method for the formation of a fistula between the gall-bladder and duodenum, although the method of incision and suture seems to me to be safer, but I cannot regard it yet as a justifiable operation, whatever may be its future after further experimental study. In one respect I should differ from Dr. Gaston. The pathological conditions, which would make duodeno cholecystostomy proper, are such as are constantly recurrent. For that reason, indeed, Langenbuch recommended the excision of the gall bladder, in order to prevent the formation of gall stones, and render the cure permanent. It should therefore be the aim of the surgeon to make any fistula that he might establish enduring. This can only be hoped for if the opening between the viscera is originally very large; even then it is probable that the tendency to contraction in so loose a structure as the gall-bladder would be greater than the tendency to keep the communication open. When, therefore, Dr. Gaston says, commenting on one of his cases: "Upon stitching up the duodenum to the point of opening, it was evident that too much tissue had been included in the ligature, as the orifice was unnecessarily large; and in repeating this experiment I would suggest that the needle and ligature should only include so much of the respective wall as to secure an orifice from the cavity of the gall-bladder into the alimentary canal," he would seem to me to be urging a practice which would defeat its own ends. While it is not impossible that a small fistula would remain indefinitely open, to make that event even

slightly probable, the orifice should be made as large as possible.

It is not only in fistulas of the gall-bladder that this tendency to contract has been remarked, but also in those of the stomach and small intestine. In one case an opening of three centimeters in diameter between the stomach and small intestines had contracted in five months and a half to less than half a centimeter, and in another case an orifice an inch long, had altogether closed in four months (Weir).

It becomes important, therefore, to study the conditions which favor, and those which oppose this undesired process of healing. It can hardly be doubted that a large opening would be less likely to close than a small one, and large orifices may be made by all methods, by that of the ligature as well as by others. There are probably other circumstances, however, which also influence the result. One of these must be the greater or less perfection with which the mucous coats are united, for if in any case union takes place between the outer surfaces while the mucous membranes are left unattached, a line of granulating tissue would occupy the inner edge of the orifice which might be expected to subsequently indefinitely contract, whereas an opening lined by a continuous layer of mucous membrane would tend to retain its shape and size; so, too, any great inflammatory deposit on the outer surface would tend to produce the same result of contraction and obliteration of the orifice.

It is not then a matter of indifference, by what means the communication is completed. Experience alone can determine the value of the different methods in this respect, but after careful study of pathological specimens from my own cases, I feel hopeful that my method will prove of especial value in making permanent openings between the viscera, for I have noticed first of all, that during the process of absorption from the pressure of the cord the mucous membranes are forced in on both sides until they meet, so that the ligature leaves behind it a smooth edge covered with the inner lining, and second the irritation of the serous membranes by the ligature is just sufficient and no more than to cause adhesion. In some of my experiments I used silk ligatures instead of rubber and found that they too would cut through the tissues and leave an opening. In many ways, however, they were inferior. They would soon lose their antiseptic qualities, act as setons and cause too much inflammation. There were therefore more failures, and owing to the too great deposit of lymph the intestines were apt to remain puckered up with a small contracting opening, instead of a large one. The rubber, on the contrary, causes barely enough irritation to cause union of the serous surfaces.

In conclusion, then, I will sum up the matter as follows:

1. Rubber ligatures can be used advantageously in many cases to produce anastomosis between two hollow viscera.

2. They are adapted for all chronic cases, in which it is possible to wait four days for the completion of the opening.

3. They are contraindicated in all cases of acute obstruction which demand immediate relief.

4. In using them for this purpose they should be passed through the opposing viscera in such a way as to include all of the intervening tissues, serous and muscular coats and mucous membranes in one tight knot.

5. Union takes place between the serous surfaces after the application of the ligature by primary adhesion with a minimum amount of irritation.

6. The method of thus producing an intestinal anastomosis excels all others in the rapidity of its execution and in its freedom from danger of shock, fæcal extravasation and septic poisoning. Its sole drawback is the length of time required for its completion. I shall be glad if the profession will give it a trial in appropriate cases.

I take pleasure in acknowledging my indebtedness to Drs. Ives and Ireland and Messrs. Hickey and Warren for their assistance in making the necessary experiments.[1]

ORIGINAL ARTICLES.

FRACTURE OF THE ASTRAGALUS, WITH IRREDUCIBLE DISPLACEMENT OF THE FRAGMENT.

A Paper read before the Fourth Annual Meeting of the National Association of Railway Surgeons, held at Buffalo, New York, April 30, and May 1 and 2, 1891.

BY R. HARVEY REED, M.D.,

(UNIVERSITY PA.), MANSFIELD, OHIO.

PRESIDENT NORTH CENTRAL OHIO MEDICAL SOCIETY; SURGEON BALTIMORE & OHIO R. R.; MEMBER NATIONAL ASSOCIATION OF RAILWAY SURGEONS; AMERICAN MEDICAL ASSOCIATION; BRITISH MEDICAL ASSOCIATION; AMERICAN PUBLIC HEALTH ASSOCIATION; HONORARY MEMBER D. HAYES AGNEW SURGICAL SOCIETY, PHILADELPHIA; TEXAS STATE MEDICAL SOCIETY, ETC.

Fractures of the astragalus as compared in frequency with fractures of the other tarsal bones, are comparatively rare; whilst fractures of this bone with irreducible displacement is still more uncommon.

This bone being largely composed of cancellated tissue, and quite irregular in form, and surrounded with numerous articulations, affords it a greater immunity from injury, than almost any other one of the tarsal bones.

In fact, little is said in our text-books regarding this important complication, which to the railroad surgeon is of double importance, owing to the permanent injury it produces, and the con-

[1] The rubber ligatures can be procured of Milburn & Williamson, Detroit, Mich.

sequent dangers this form of injury is liable to entail on the railroad company.

Hamilton, in his work on "Fractures and Dislocations," reports ten cases of fracture of the astragalus, nine of which were caused by a fall, and one by crushing. In the former the force was largely reflected to the foot, and conducted to the astragalus through the tibia, causing the fractures, some of which were followed by displacement of the fragments.

Ashhurst says it is almost invariably broken, by the patient falling from a height and alighting on his feet; and that he only knew of two cases, where there had been a fracture of this bone, with displacement of the fragment; the one was a case reported by himself, the other by Dr. Norris.

Agnew, in referring to fractures of the tarsus, reports seven fractures of the astragalus; 14 of the calcaneum, and 25 of the other bones of the tarsus; which shows that fractures of the astragalus only occur in 15 per cent. of all the fractures of the various bones of the tarsus.

Longsdale, Croly, Neill, Bryant, Vollmar, MacCormac, M. Tavignot, Malgaigne, M. Rognetta, Sir Astley Cooper, Clark, Norris, Goyder and John Ashhurst, Jr., each report a case of fracture of this bone; whilst Sheppard reports having observed four fractures of the astragalus, and Mr. Erichsen two.

The testimony of these surgeons, proves that it is usually caused by falling, in which the patient alights on some solid substance on the feet, whereby the force of the fall is extended to the astragalus which may cause a simple fracture, with or without dislocation of the fragment, or a comminuted fracture with or without displacement of the fragments, or a compound comminuted fracture, with or without displacement of the fragment or fragments. The fragment or fragments may be dislocated anteriorly on the dorsum of the foot, or downward and forward, or downward, outward and backward under the internal malleolus; and one case is reported, in which the displaced fragment found its way to the plantar surface of the foot.

There is no certainty as to the direction of the line of fracture, which is as varied as the force or forces that produce it.

The reduction of these displaced fragments is quite a difficult task, which is usually attended with absolute failure, especially when they are displaced downward and backward under either of the malleoli, and whilst Dr. Ashhurst reports in the *American Journal of Medical Sciences*, for April, 1862, of having been able to replace a dislocated fragment of a fractured astragalus, yet I believe he is the only surgeon who has been able to do so (and has reported the case), to the best of my knowledge at least.

The anatomical relations of the astragalus are such, that when displacement of a fragment after a fracture occurs, it makes it evident at a glance, that its reduction will be attended with great difficulty; especially when we consider its shape and structure, together with the numerous ligaments and articular surfaces it presents; yet, notwithstanding all this, I consider it good surgery to make an honest and carefully conducted effort at reduction by trying to so manipulate the parts as to give the least possible resistance to its return; the particular manipulation of which, will depend largely upon what part of the bone is fractured and displaced, and where it is lodged. Operative interference for the removal or reduction of the bone, especially after prolonged and diligent efforts had failed to replace it, would very naturally present itself to our minds next. In this connection, we can find but little data to guide us; whilst Bryant and Wythe operated and removed the displaced fragment with recovery, yet, on the other hand, a similar case operated by Dr. Norris, died. These, in the absence of additional reports, would show a mortality of 33 per cent. against 66 per cent. of recovery, and at a time when at least two of these cases (Norris' and Bryants') were undoubtedly operated prior to the use of antiseptics, and whilst we have no assurance that Wythe's was, although it is more probable than either of the other cases.

Some operators advise the replacement of the dislodged fragment, others, the removal of the entire astragalus (which was done in Wythe's case), whilst others only advise the removal of the displaced fragment. But when we consider the structure of the bone, which is made up largely of cancellated tissue, and consequently more vascular, and hence the remaining portion of the bone is more liable to take on destructive inflammation on the one hand, whilst the replaced fragment is liable to become necrosed on the other, owing to the interference with the blood supply, as well as the danger of the introduction of septic germs, which makes the question of replacement by operative interference a doubtful procedure.

Again, if the displaced fragment is allowed to remain out of place, it not only makes a permanent deformity, but a permanent disability; but on the other hand, if you attempt to remove only the fragment, you take the chances of disease of the remaining portion of the bone following, and if you remove the entire bone there is more or less permanent deformity and disability from that. From this it would seem as though this injury produced a fair example of the old adage of:

> "Damned if you do, and damned if you don't.
> Damned if you will, and damned if you wont."

From this it would appear that we are left to the choice of four or five evils: 1. If the fragment can't be reduced by manipulation (except-

ing in compound or compound comminuted fractures) to simply let it alone, and take the chances of it becoming encysted.

2. To remove only the displaced fragment, by cutting down on it, and extracting it antiseptically.

3. To remove the entire astragalus.

4. To replace the displaced fragment, and take the chances of inflammation and destruction of both the hard and soft structures of the surrounding tissues.

5. To remove the displaced fragment and thoroughly cleanse the cavity it left, and put all the surrounding parts in a strictly aseptic condition, after which, pack the cavity with Senn's antiseptic decalcified bone chips, which I believe is better than replacing the detached fragment of bone; as it is very hard to make this strictly antiseptic, whilst the decalcified bone chips are, and hence less liable to set up infection in the surrounding parts.

REPORT OF CASES.

Case 1.—George M., æt. 55, an amanuensis; on August 12, 1885, was riding with a friend in a delivery wagon, when the horse took fright and started to run away. Mr. M. became alarmed, and jumped out of the wagon on the paved street, sustaining a fracture of the astragalus of the left foot, with displacement of the fragment downward and backward under the malleolus; the internal fragment was also slightly displaced backward and inward, thus lengthening the lateral diameter of the ankle quite considerably. The foot and ankle soon swelled up and became very painful; a physician was called who pronounced it a *bad sprain* of the ankle, and treated it accordingly.

Some months subsequently the writer was called and found a fragment of the astragalus, about two inches in length, and nearly as wide, lodged under the left external malleolus; whilst the depression caused by the displaced fragment was easily detected, just beneath, inward and in front of the fibula. All attempts at reduction were without avail; but notwithstanding the marked deformity, the patient could use his foot fairly well and had quite a considerable degree of motion; but it was more or less painful and was a source of inconvenience to him all the time, and especially so in changeable weather. Later on necrosis of the external metatarsal bone set in, and at one time it was thought that the entire foot would have to be amputated; an excision, however, of the external metatarsal was all that was necessary; since which time, he has had but little trouble with it, other than what we have already mentioned.

Under all the circumstances, I considered that conservative surgery in his case was a choice of the least evil, and hence refrained from excising the displaced fragment. The result is that this patient is now able to walk all over the city with the aid of a cane, and whilst his foot and ankle is stiff and clumsy, I believe it is better than to have risked an operation for its removal.

Case 2.—Chas. S., æt. 29, a brakeman in the B. and O. yards at Mansfield, O., was thrown off the top of a box car by a broken brake May 13, 1889, alighting on his feet on the end of a tie; sustaining a fracture of the astragalus of the right foot, with displacement of the fragment underneath the internal malleolus.

I was called shortly after the accident, and readily diagnosed the nature of the injury, as I could easily feel the displaced fragment beneath the internal malleolus, whilst beneath and in front of the internal half of the tibia, I could readily discover the depression left by the escaped fragment of bone. In addition to this there was some spreading of the tibia and fibula, thus materially increasing the lateral diameter of the ankle; no doubt due to the tearing of the ligaments, and the strain produced by the fall, together with the escape of such a large fragment of bone, with its associate weakening of the surrounding parts.

Here again we were confronted with the question of an operation for the removal of the displaced fragment of bone, which no ingenuity or manipulation the author could devise, was able to replace.

In its present location we recognized a degree of support to the tibia, being lodged immediately underneath the internal malleolus, which support would be lost by its removal, saying nothing of the danger attending the operation to the surrounding structures; and again, conservatism got the better of us and we decided to let well enough alone. The result is a more or less painful ankle at times, with considerable loss of motion, and some deformity; but otherwise, a fairly good foot and leg which enables him to walk reasonably well and earn a good livelihood for his family.

Case 3.—Harry D., a stonemason, æt. 33, jumped off a freight train when it was in motion, October 8, 1889, and lit with one foot on the end of the tie, producing a fracture of the astragalus of the right foot, with displacement of the fragment underneath the external malleolus. The author was called to see the patient a short time after the injury, and found a fragment of the astragalus some 2 inches in length by 1 inch in width, lodged just beneath and slightly posterior to the coronoid process of the fibula. A marked depression was observed just below, in front and internal, to the external malleolus, which was evidently the nidus of the displaced fragment of the bone. In the absence of sufficient data to encourage an operation, and with the dangers that might attend such staring me in the face, I again resolved to pursue the conservative method of treatment, until something better presented it-

self to my mind as unquestionably an improvement on the conservative methods I had thus far been forced to adopt.

The results in this case are much better than either of the former cases. The patient has little or no pain, except when the weather changes, and is not inconvenienced to any extent; can walk with limping but little, and is regularly following his daily avocation as a stone-cutter.

The following interesting case was kindly given me for this paper, by my friend Prof. Thorne, of Toledo, O., Surgeon in Chief of the Toledo, St. Louis and Kansas City R. R.:

Case 4.—H. F., a German, æt. 32, weighing about 200 lbs., a lager beer brewer, and given to the liberal use of this fluid, whilst at work slipped from the lower round of a ladder, alighting upon a wet floor. The peculiar position of landing, together with the great weight of the patient, were such as to result in a fracture of the astragalus of the left foot, forcing the outer half out from its normal position, and causing quite a prominence over the outer portion of the dorsum of the foot.

A corresponding diagnosis was made, and the injury treated accordingly. In about thirty days after the accident, complete death of the overlying structures ensued, necessitating the removal of the displaced fragment of bone. This was followed by decomposition and infection, which was no doubt encouraged by his constitutional condition, and the result of his intemperate habits, until it was necessary to amputate his leg below the knee, in order to save his life.

Here we have a case where conservative surgery was followed with disastrous results which probably lost the patient his foot.

In summing up the testimony of this unfortunate injury, we have found that, in fractures of the astragalus with displacement of the fragment:

1. That reduction is the rare exception, and not the rule.

2. That total failure to reduce the fragment, is the general rule in this class of cases.

3. That these cases may get well with a fairly good and useful ankle by following a conservative method of treatment.

4. That a conservative line of treatment may be followed with disastrous results.

5. That a fair degree of recovery may follow the excision of the dislocated fragment.

6. That destructive inflammation of the remaining portion of the astragalus may follow with necrosis, necessitating its ultimate removal.

7. That a fracture involving any considerable portion of the astragalus, with displacement of the fragment, is practically if not almost invariably followed with a permanent and irreparable injury; for if resolution follows without an operation, there is a permanent deformity with associate disability, or if the fragment is removed and the patient recovers, there is a permanent disability; or if the entire astragalus is removed, as advised by some authors, there is still a fixed disability.

It seems to me that *one* of the plain lessons we are to learn from the study of these cases, is to be very guarded in our prognosis, in fractures of the astragalus with irreducible displacement of the fragment; for if we are not, we may rue our rashness under the lash of chagrin and disappointment.

Another plain lesson seems to be stamped upon the clinical history of this class of cases; and that is, to be equally guarded in operating them, as you are in projecting your diagnosis.

But, when an operation for the removal is your plain duty, do it promptly, under the strictest antiseptic precautions, and if you have any doubt as to the danger of necrosis of the remaining portion of the bone, remove that also. Where this is not evident, it might be well to consider the advisability of packing the cavity produced by the displaced fragment of bone, after thoroughly cleansing it, with Senn's decalcified bone chips, being careful to remove all the synovial membrane before packing the cavity; for the use of these decalcified bone chips as used by Prof. Senn, after the removal of portions of dead bone, has been so satisfactory, that we believe their use in this class of cases would be followed by satisfactory results also.

Mansfield, O., April 20, 1891.

LECTURES.

THE CHEMICAL FACTORS IN THE CAUSATION OF DISEASE.

A Course of Three Lectures delivered at the Post-Graduate Medical School of Chicago, March 26, 27 and 28, 1891.

BY VICTOR C. VAUGHAN, M.D., Ph.D.,
OF ANN ARBOR, MICH.
PROFESSOR OF HYGIENE AND PHYSIOLOGICAL CHEMISTRY AND DIRECTOR OF THE HYGIENIC LABORATORY IN MICHIGAN UNIVERSITY.

(*Continued from page 670.*)

LECTURE III.—THE AUTOGENOUS DISEASES.

All living things are composed of cells. The simplest forms of life are unicellular, and in these all the functions of life devolve upon the single cell. Absorption, secretion and excretion must be carried on by the same cell. A collection of unicellular organisms might be compared to a community of men with every individual his own tailor, shoemaker, carpenter, cook, farmer, gardener, blacksmith, etc. However, only the lowest forms of life are unicellular; all others are multicellular. In the higher animals there is a differentiation not only in the size and structure of the cells, but in the labor which they perform. The body of man may be compared to a

community in which labor has been specialized. Certain groups of cells, which we designate by the term "organ," take upon themselves the task of doing some special line of work, the well-doing of which is essential to the health, not only of that group, but of other groups as well, or of the body as a whole. There is an interde pendence among the various organs. Certain groups of cells supply the fluids or juices which act as digestants, and among these there is again a division of labor. The salivary glands supply a fluid which partially digests the starch of our food; the peptic glands supply the gastric juice which does the preliminary work in the digestion of the proteids; while the pancreatic juice completes the digestion of the starches begun in the mouth, of the proteids begun in the stomach, and does the special work of emulsifying the fats. But even some of these products of complete digestion would be harmful should they enter the circulation unchanged. The peptones must be converted into serum-albumin by the absorbing mechanism of the walls of the intestines, and while 10 per cent. of the fat of the food is split up into glycerine and fatty acids by the action of the pancreatic juice, a much smaller per cent. enters the thoracic duct in this divided form. The food may be taken in proper quality and quantity; the digestive juices may do their work promptly and properly, but if the absorbents fail to perform their functions properly, disease results. It may happen that the failure lies in improper or imperfect assimilation and the result becomes equally disastrous, and with the effects of non-elimination we are fairly conversant. Of the myriads of cells in the healthy human body there are none which are superfluous. It is true that among these ultimate entities of existence, death is constantly occurring, but in health regeneration goes on with equal rapidity and each organ continues to do its daily and hourly task. The microscope has made us familiar with the size and shape of the various cells of the body, and the students of pathology have described the alterations in form and size characteristic of various diseased states. But we must remember that in the study of these ultimate elements of life there are other things, besides their morphological history, to investigate. They are endowed with life, and they, as well as the germs which we have been studying, have a physiology and chemistry which we know but slightly. They are influenced beneficially or harmfully, as the case may be, by their environment. They grow and perform their functions properly when supplied with the needed pabulum. They are not immune to poisonous agents. They are injured when the products of their own activity accumulate about them.

The object in writing this lecture has been to collect what evidence I may concerning those diseases which arise from imperfect or improper activity of the cells of the body, not due to the introduction of foreign cells. To designate this class of diseases I have selected the word *autogenous*, and I understand that in these diseases the materies morbi is a product of some cell of the body, and not, as in the case of the infectious diseases, of cells introduced from without the body.

It is true, without exception so far as I know, that the excretions of all living things, plants and animals, contain substances which are poisonous to the organisms which excrete them. A man may drink only chemically pure water, eat only that food which is free from all adulterations, and breathe nothing but the purest air, free from all organic matter, both living and dead, and yet that man's excretions would contain poisons. Where do these poisons originate? They are formed within the body. They originate in the metabolic changes by which the complex organic molecule is split up into simpler compounds. We may suppose—indeed, we have good reasons for believing—that the proteid molecule has certain lines of cleavage along which it breaks when certain forces are applied, and that the resulting fragments have also lines of cleavage along which they break under certain influences, and so on until the end products, urea, ammonia, water and carbon-dioxide are reached; also that some of these intermediate products are highly poisonous has been abundantly demonstrated. The fact that the hydrocyanic acid molecule is a frequent constituent of the leucomaines is one of great significance. We know that chemical composition is an indication of physiological action, and the intensely poisonous character of some of the leucomaines conforms to this fact. It matters not whether the proteid molecule be broken up by organized ferments bacteria, or by the unorganized ferments of the digestive juices, by the cells of the liver or by those still unknown agencies, which induce metabolic changes in all the tissues—in all cases poisons may be formed. These poisons will differ in quality and quantity according to the proteid which is acted upon, and according to the force which acts.

Peptones formed during digestion do not in health reach the general circulation. When injected directly into the blood they act as powerful poisons. They destroy the coagulability of the blood, lower blood-pressure, and in large quantities cause speedy death. Brunton attributes the lassitude, depression, sense of weight in the limbs and dulness in the head occurring in the well-fed, inactive man, after his meals, to poisoning with peptones. The remedy, which he proposes, is less food, especially less nitrogenous food, and more exercise. That some substance resulting from the proteids of the food is the

cause of this trouble Brunton thinks is evidenced by the fact that the weakness and languor are apparently less after meals consisting of farinaceous foods only.

That peptone finds its way into the general circulation frequently is shown by its detection in the urine in many diseased conditions, some of which are infectious and others autogenous in character. However, propeptonuria, or albumosuria, is more common than peptonuria, and we have already seen that many of the bacterial albumoses are among the most highly poisonous bodies known, but the action of the albumoses formed during digestion has not, so far as I know, been studied. The valuable work of Kühne and Chittenden on the chemical character of these bodies should be supplemented by a thorough investigation of their physiological effects when injected into the blood. It is more than probable that valuable information would be secured by such studies. That albumose is frequently found in the urine is shown by the following list of diseases in which it has been observed, given in the last edition of the work of Neubauer and Vogel on the urine. Kösner has found it in spermatorrhœa; Köppen, in mental diseases without spermatorrhœa; Kahler, in osteomalacia; Bence Jones, in multiple myeloma; Senator and others, in dermatitis, intestinal ulcer, liver abscess, croupous pneumonia, apoplexy, vitium cordis, resectio coxæ, parametritis, endocarditis, typhoid fever, nephritis, phthisis, etc.; Loeb, in measles and scarlet fever; Leube, in urticaria; and Lassar, after inunctions of petroleum. Köttnitz, Fürstner and others find albumose frequently in the urine in mental diseases. Evidently, there is much to learn from the study of the conditions accompanied by the elimination of the albumoses in the urine. It is more than probable that the acute Bright's disease following scarlet fever, diphtheria, and the other acute infectious diseases, owes its existence to the poisonous albumoses of these diseases. Prior has recently shown that undigested egg albumin is sometimes absorbed and produces marked disturbances. A boy, after eating sixteen raw eggs, had a high fever accompanied by the appearance of both albumin and hæmoglobin in the urine.

Brieger obtained by digesting fibrin with gastric juice a substance which gives reactions with many of the general alkaloidal reagents and to which he has given the name "peptotoxine." A few drops of a dilute aqueous solution of this substance sufficed to kill frogs within fifteen minutes. The frogs became apparently paralyzed and did not respond to stimuli. Slight tremor was perceptible in the muscles of the extremities. Rabbits of about one kilogram weight were given from 0.5 to 1 gram of the extract subcutaneously. About fifteen minutes after the injection, paralysis beginning in the posterior extremities set in: the animal fell into a somnolent condition, sank and died. In some rabbits several hours elapsed before the above mentioned symptoms appeared.

Peptotoxine was found by Brieger to be formed not only by the digestive juice, but to be among the first putrefactive products of proteids, as fibrin, casein, brain substance, liver and muscle.

It is highly probable that many of the nervous symptoms which accompany some forms of dyspepsia are due to the formation and absorption of poisonous substances.

In some persons the tendency to the formation of poisons out of certain foods is very marked. Thus, there are some to whom the smallest bit of egg is highly poisonous; with others, milk will not agree; and instances of this kind are sufficiently numerous to give rise to the adage, "what is one man's meat is another man's poison."

Brunton is of the opinion that the condition which we term "biliousness," and which is most likely to exist in those who eat largely of proteids, is due to the formation of poisonous alkaloids; but of this we have no positive proof.

Whether or not the unorganized digestive ferments ever find their way into the blood in quantity sufficient to cause deviations from health, we are not in a position to state definitely. The older physiological chemists teach us that pepsin and trypsin are frequent, if not constant constituents of normal urine, but their experiments were made without any reference to the possibility of the ferments which they found being formed by the bacteria of the urine, and after carefully going over the literature of the subject I am not prepared to pass judgment on the truth of their statements. However this may be, the fact that these ferments manifest a marked toxicological effect when introduced into the blood is of great interest, especially at this time. Hildebrandt has recently reported the results of some experiments made by himself upon this subject. He finds that a fatal dose of pepsin for dogs is from 0.1 to 0.2 gram per kilogram of body weight. The subcutaneous injection of these quantities is followed by a marked elevation of temperature, which he designates as "ferment fever." This fever begins within an hour after the injection, reaches its maximum after from four to six hours, and may continue for some days. On the day preceding death, the temperature generally falls below the normal. During the period of elevation there are frequent chills.

The symptoms which accompany the fever vary somewhat with the species of animal. Rabbits lose flesh notwithstanding the fact that they continue for a while to eat well, become very weak and death is preceded by convulsive movements. Dogs tremble in the limbs, become uncertain in gait, and vomiting, dyspnœa and coma are followed by death.

On section there is observed parenchymatous degeneration of the muscles of the heart, and similar changes in the liver and kidney. There are abundant hæmorrhages in the intestinal canal, in Peyer's patches, in the mesenteric glands; and in the lungs in cats. Thrombi are frequently found in the lungs, and in some cases in the kidneys.

The effect upon the coagulability of the blood is worthy of note. At first there is a period during which the coagulability of the blood is greatly lessened, then follows a period of greater rapidity in coagulating, and it is in this latter stage that the thrombi are formed.

These experiments are interesting not only as a possible explanation of the cause of some of the autogenous fevers, which will be discussed later, but in view of the present tendency to inject such complex animal solutions as Brown-Séquard's elixir and Koch's lymph subcutaneously, and they will probably cause us to exercise a little more care in this direction.

That certain febrile conditions are autogenous there can be no doubt. These, like other diseases originating within the system, may be due to either of the following causes: 1. There may be an excessive formation of poisonous substances in the body. Thus, Bouchard has shown that the urine excreted during the hours of activity is much more poisonous than that excreted during the hours of rest. Both physical and mental labor are accompanied by the formation of these deleterious bodies, and if the hours of labor are prolonged and those of rest shortened, there will be an accumulation of effete matters within the system. 2. The accumulation of the poisonous matters may be due to deficient elimination. 3. Some organ whose duty it is to change harmful into harmless bodies may fail to properly perform its functions. Illustrations of diseased conditions arising from these several causes will be given.

First, we may mention fatigue fever, which is by no means uncommon, and from which the over-worked physician not infrequently suffers. One works night and day for some time; elimination seems to proceed normally; but after a few days there is an elevation of temperature of from one to three degrees, the appetite is impaired, and then if the opportunity for rest is at hand sound and restful sleep is impossible. The tired man retires to his bed expecting to fall asleep immediately, but he tosses from side to side all night, or his sleep is fitful and unrefreshing. The brain is excited and refuses to be at rest. The senses are alert and all efforts to sink them in repose are unavailing. Fatigue fever is frequently observed in armies upon forced marches, especially if the troops are young and unaccustomed to service. Mosso has studied this fever in the Italian army. He states that in fatigue the blood is subjected to a process of decomposition brought about by the infiltration into it from the tissues of poisonous substances, which when injected into the circulation of healthy animals, induce malaise and all the signs of excessive exhaustion. It is possible that in this decomposition of the blood the fibrin-ferment, which according to Schmidt, is held in combination in the colorless corpuscles, is liberated; and it has been shown by Edelberg, that the injection of small quantities of free fibrin-ferment into the blood causes fever, while the injection of larger quantities is followed by the formation of thrombi, as has been demonstrated by the experiments of Edelberg, Bonne, Birk and Köhlar.

Fatigue fever is often accompanied, especially during the period of elevation, by chilly sensations, and consequently it is pronounced malarial and quinine is administered, but it does no good, often harm by increasing cerebral excitement. The proper treatment is prolonged rest with proper attention to elimination.

Then there is the fever of exhaustion, which differs from fatigue fever only in degree. It is brought on by prolonged exertion without sufficient rest and often without sufficient food. The healthy balance between the formation and elimination of effete matter is disturbed, and it may be weeks before it is reëstablished; indeed, it may never be regained, for some of those cases terminate fatally. The fever of exhaustion may take on the typhus form, delirium may appear, muscular control of the bowels may be lost and death may result.

That the fever of exhaustion has been mistaken for typhoid by some of the ablest clinical teachers is shown by Peter in the following quotation: "It was in 1852," says he, "when entering upon my clinical studies, and ardent in my attendance at the clinic of Chomel, I was witness of the following instance: A young man was received under the celebrated professor's charge, suffering from prostration, muscular pain and rachialgia. Chomel made the examination with all the care and attention used by him, then, as was also usual with him, in the presence of the patient, he gave the diagnosis in Latin, which was *aut febris peyerica aut variola incipientis*, either typhoid fever, or incipient small-pox. I felt rather dissatisfied at a diagnosis so little precise, by one so eminent in his art. The truth of the matter was, though Chomel was not aware of it, this young fellow in a state of destitution had walked from Compeigne to Paris, sleeping by the wayside at night and nourishing himself with such refuse food as chance supplied. It was under such circumstances the patient had developed febrile symptoms. The day after his admission and simply from rest in bed, he felt better, and the day following he was altogether well."

That all cases of the fever of exhaustion do not terminate so rapidly as that instanced above

by the great French teacher, is shown by one which I happen to have under my care at the present moment. A lady, rather frail in body, but without any organic disease, spent the greater part of the time day and night for ten days in the sick-room of her child who died with diphtheria. Since the death of the child, the mother has been confined to her bed with a fever which varies from 99° to 102.5°. She has no soreness of throat or other evidences of infection with diphtheria. She has no symptoms of typhoid fever, and with the exception of slight constipation, which has been easily relieved, her bowels have remained in good condition. She took but little food during the sickness of the child and has had no desire for food since. Her temperature is but slightly affected by two-grain doses of antifebrin and the highest point reached each day is very variable. The mind is clear and she has been altogether free from headache. Her temperature is lowered by a few hours sleep. This condition has now continued for nineteen days. I have pronounced this a case of fever from exhaustion, and if this diagnosis is not correct, I must admit that I do not understand the nature of the case.

A case, similar to the above, I saw some time ago in a young man who had been leading quite an inactive life as a student, and who did a very foolish thing in walking one day a distance of more than thirty miles. The next morning he had a fever, which varied from 99° to 103°, and which continued for more than one month. The physician in charge pronounced this a case of typhoid, but of the correctness of his diagnosis there was not the slightest evidence. In this instance, quinine was first employed, but it increased the wakefulness and restlessness, and was followed by an elevation in the temperature.

I have known at least one case of this kind to terminate fatally, and a most thorough post-mortem examination failed to reveal any definite lesion.

Then, again, there is the fever of non-elimination, which all physicians of experience have observed. There is a feeling of languor, the head aches, the tongue is coated, the breath offensive, and the bowels constipated. The physician fears typhoid fever, but finds that a good, brisk cathartic dissipates all unpleasant symptoms, and the temperature falls to the normal. This fever is also liable to appear among those who are confined to bed from other causes. Brunton says: "No one who has watched cases of acute diseases, such as pneumonia, can have failed to see how a rise of temperature sometimes coincides with the occurrence of constipation, and is removed by opening the bowels." The surgeon and obstetrician have often had cause to rejoice when they have found a fever, which they feared indicated septicæmia, disappearing after free purgation.

Bouchard has shown that normal fæces contain a highly poisonous substance, which may be separated from them by dialysis, and which, when administered to rabbits, produces violent convulsions. He estimates that the amount of poisonous alkaloids formed in the intestines of a healthy man each twenty-four hours, would be quite sufficient to kill, if it was all absorbed. He proposes the term stercoræmia for that condition which results from arrest of excretion from the intestine.

It is more than probable that the poisons of the intestines are due to the bacteria which are normally present; but this would not exclude the fever of non-elimination from the list of autogenous diseases. The bacterial cells which are normally present in the intestines, cannot be regarded as invaders from without.

It would seem from some recent studies, that not all surgical fevers are due to bacterial activity. The absorption of aseptic blood clots, and of disintegrated tissue in cases of complicated fractures and contusions of the joints, is accompanied by an elevation of the temperature above normal. A like result may follow the intravenous injection of a sterile solution of hæmoglobin, or of the blood or another animal. The causative agent in the production of these fevers remains unknown. In the blood of twelve out of fifteen patients with aseptic fever, at the clinic of Nothnagel, Hammerschlag has found free fibrin-ferment, but in five persons without fever he found the same substance in the blood. This leaves the causative agent in the production of the aseptic, or more properly speaking, the non-bacterial, fevers unknown.

The chemical theory of so-called uræmia has received support in recent researches, notwithstanding the fact that the old idea that urea is the active poison, and the theory of Frereiches, that ammonium carbonate is the active agent, have been abandoned. Landois laid bare the surface of the brain in dogs and rabbits, and sprinkled the motor area with kreatin, kreatinin and other constituents of the urine.

Urea, ammonium carbonate, sodium chloride and potassium chloride had but slight effect, but kreatin, kreatinin and acid sodium phosphate caused clonic convulsions on the opposite side of the body, which later became bilateral. The convulsions continued at intervals for from two to three days, when growing gradually weaker, they disappeared. Landois concludes that chorea gravidorum is a forerunner of eclampsia. These experiments have been confirmed by Leubuscher and Zeichen.

Falck injected into both sound and nephrotomized animals fresh urine, urine and the ferment of Musculus and Lea, and urine which had undergone spontaneous decomposition, without producing any symptoms which were comparable

with those observed in uræmia. However, he did find that if a few drops of an infusion of putrid flesh was added to the urine before injection, all the typical symptoms of uræmia were induced. That the infusion of putrid flesh alone had no effect, was also demonstrated. This would lead us to believe that some ferment in the infusion converts some constituent of the urine into a highly poisonous body. In this connection, attention may be called to the fact that kreatin may be converted, by the action of certain germs, into methyl-guanidin, which produces convulsions. Whether such conversion occurs in uræmia or not, and if it does what the cause of it is, are questions which must be left for future investigations to decide. It would be well for some one to test the brain and blood of a person who has died in uræmic convulsions for methyl-guanidin.

MEDICAL PROGRESS.

Therapeutics and Pharmacology.

SIMPLE METHOD FOR CONTROLLING EPISTAXIS.—DR. W. W. PARKER, of Richmond, Va., says in the New York *Medical Record:* The plan of arresting hæmorrhage from the nose, which I here describe, I have used for thirty years without one failure. When I first began to practice I used Bellocq's instrument, but found it painful, and in small children, exceedingly troublesome of application. The little device which I use is made of fifteen of the long threads of patent lint, size three and one-half, or four inches long, which I double on themselves and tie in the middle, and let one end of the string be six or eight inches long so as to pull the plug out when necessary. When doubled on itself it looks like a "comet" in miniature, with a nucleus and thirty tails or twice the number of threads used. A probe is pressed up against the centre, and is passed back upon the floor of the nasal cavity and pushed on till you reach the posterior nares. This will be known both by the resistance and the length of the probe, or the depth which you have reached. Then slowly withdraw the probe and plug the anterior nares and you have arrested the bleeding. These twenty or thirty ends floating in the blood at once coagulate it. The passage of the soft lint gives no pain whatever. If lint is not at hand I use the largest size spool cotton. The plug is removed in from twenty-four to forty-eight hours. It gives no pain and the patient is willing for it to remain. The other methods are all painful in execution, and the discomfort, while the plug remains, is very considerable.

Medicine.

BROMISM AND INTESTINAL ANTISEPSIS.—In a note read before the Société de Biologie, at the meeting held January 24, 1891, DR. FERRET continues the study of the influence of intestinal antisepsis on bromism, already referred to in a previous number of the *Gazette* (*La Médicine Moderne*, February 5, 1891). He confirms the statement already mentioned that not only may one with sufficient doses of naphthol and salicylate of bismuth prevent cutaneous manifestations of bromism, but one may by these means even cure an eruption, if already so produced. He also maintains that borax also may produce eruptions quite as serious as those which follow the administration of large amounts of bromides, and that such eruptions may be likewise treated and cured by the same method. He believes that his experience has demonstrated that this method should be generally employed, and always with a prospect of success in the treatment of the cutaneous manifestations which follow the ingestion of drugs — *Therapeutic Gazette.*

CHRONIC RHEUMATISM AND THE NERVOUS SYSTEM.—A novel and suggestive, if somewhat revolutionary, theory in reference to the dependence of chronic rheumatic joint changes on a morbid condition of the central nervous system is advocated in a work by DR. WICHMANN, of which an abstract is furnished in a recent number of the *Centralblatt für Klinische Medicin.* The author began his work six years ago, with the view of explaining the nervous symptoms associated with rheumatic joint affection, and the dependence of those upon a central cause was first suggested by the occurrence of symmetrical phenomena such as patches of erythema, subcutaneous nodules, etc. Charcot has explained the occurrence of contractures in rheumatism by supposing that there is an inflammation of the articular nerves, the influence of which is transmitted to the centres in the cord, there giving rise to irritation of the motor roots; and the fact that the contracture is usually in the flexed position is explained by the greater power of flexors as contrasted with extensors. But it is pointed out that this would not explain the occasional occurrence of extensor contraction, and that, moreover, in other conditions giving rise to joint affection, such contractures do not take place. Further, as supporting the theory of a central lesion for those conditions, attention is directed to the occurrence of arthropathies in tabes and other spinal conditions, and it is contended that a feasible explanation of the vaso-motor and trophic disturbances — such as "glossy skin"—as well as of the disturbance of sensibility, is offered by such a hypothesis.— *The Lancet.*

CHLOROSIS AND ITS TREATMENT.—DR. FREDERICK SCHOLZ, of Bremen, has published a remarkable work on chlorosis, the outcome of observations made during the last twenty years.

Instead of regarding the deficiency of iron or hæmoglobin, or even that of the red corpuscles, as the primary affection, he states that contraction of the vessels is always present in these cases, as indeed was observed by Bamberger, Rokitansky and Virchow; and this, he contends, is not to be regarded as a complication due to an altered condition of the blood, but as the primary condition which is followed by the morbid change in the blood. As a matter of fact, the vessels are, he says, too full, or in the condition termed by the older physicians *plethora ad vasa*, the blood being—or becoming—abnormally serous. Long ago his attention was struck by the cold and livid condition of the skin in anæmic subjects, and he was led by this to employ hot baths, together with gentle friction, in the treatment, with the view of acting directly upon the skin, so as to improve the vitality and nutrition generally. The success of his first attempts was so marked that he was encouraged to persevere in this line of treatment, and he has since had many opportunities of extending his experience with it. Hot baths diminish the plethora by relaxing the tension of the vascular system, which is high, quickening the circulation, and thus relieving the palpitation, dyspnœa and other symptoms. In thirty cases where the distress of the patient was very great, Dr. Scholz has gone a step further and supplemented the hot bath by venesection. Paradoxical as this treatment may appear, it was followed by marked benefit, and if the theory of the pathology of chlorosis above mentioned be correct, there can be little doubt that the novel line of treatment practiced by Dr. Scholz is justifiable.—*Therapeutic Gazette.*

Surgery.

THE TREATMENT OF STRICTURE OF THE MALE URETHRA.—DR. J. WILLIAM WHITE (*University Medical Magazine*, Vol. iii, No. 6, 1891), after giving his views *in extenso* as to the treatment of organic stricture of the male urethra, summarizes them as follows:

1. Strictures of large calibre—that is, of more than No. 15 French, situated at or behind the bulbo-membranous urethra—are to be treated, almost without exception, by gradual dilatation.

2. Strictures of large calibre, occupying the pendulous urethra, are to be treated by gradual dilatation when very recent and soft, and by internal urethrotomy when of longer standing, distinctly fibrous in character, or non-dilatable. It is to be remembered that the great majority of so-called strictures of large calibre of the pendulous urethra are merely points of physiological narrowing.

3. Strictures of the meatus and of the neighborhood of the fossa navicularis should be divided upon the floor of the urethra whenever it is evident that they are real pathological conditions producing definite symptoms, and not normal points of narrowing.

4. Strictures of small calibre (less than No. 15 French) situated in advance of the bulbo-membranous junction, unless seen very early and found to be not usually soft and dilatable, furnish the typical condition for internal urethrotomy, which should be done preferably with a dilating urethrotome, and invariably with all possible antiseptic precautions.

5. Strictures of small calibre (less than No. 15 French) situated at or deeper than the bulbo-membranous junction should be treated, whenever possible, by gradual dilatation. In a case of resilient irritable or traumatic stricture in this region, or of stricture, which, for any reason (as the occurrence of rigors), is non-dilatable, external perineal urethrotomy is the operation of choice.

6. Strictures of the deep urethra permeable only to filiform bougies should be treated by gradual dilatation when possible, the filiform being left *in situ* for some time, and followed by the introduction of others, or used as a guide for a tunnelled catheter. If the stricture be not suitable for dilatation, external perineal urethrotomy should be performed.

7. Impassable strictures of the deep urethra always require the performance of perineal section.—*American Jour. Med. Sciences.*

WHAT BECAME OF A SOFT RUBBER PESSARY.—According to a report of the St. Louis Medical Society (*Cin. Lancet-Clinic*) DR. W. B. DORSETT exhibited fragments of a soft rubber ring or air pessary, with the following history: Patient over 50, admitted to hospital for supposed cancer of uterus. She had fever, a very offensive discharge from the vagina, and much pain. The use of a syringe revealed a hardened pessary, which required to be broken into pieces before removal. The pessary had been introduced one month before, but had become hard and inflexible by the action of the vaginal secretions, causing indirectly excoriations, fissures and lacerations, with septicæmia as the result. Dr. Jacobson followed with the statement that he had removed a pessary reposited about five months before, and which had been closed over by the vaginal walls. A very offensive discharge was also present in his case.

Pathology.

ETIOLOGY OF TETANUS.—Tetanus, as distinguished from the tetanic spasms of strychnine poisoning, and the opisthotonos, etc., incident to some myelites, has generally been considered as a disease, or aggregate of phenomena, consisting essentially of a tonic spasm of all the muscles of the body, beginning with those of the jaws and neck, and ending with those of respiration. Two

forms have been recognized—the traumatic and the idiopathic; the former always following the reception of some wound, either one into which dirt has entered, or which has taken on an unhealthy character; the other, in which no such cause has been discovered, has been attributed to exposure to cold and wet—such an explanation being, however, based on negative evidence.

But the researches of Carle and Rattone, Nicolaier, Rosenbach, Brieger, Beumer, Langer and Eiselsberg, leave no room for doubt that it is properly to be classed among specific diseases, and that the phenomena are caused by the entrance into the organism of a microbe which exists outside of the body, and is widely or almost universally distributed in earth and dust. It has been induced in animals by the injection of emulsions of, or the juice expressed from, the sciatic nerve of men or other animals that have died of the disease. Nicolaier used common garden soil with success, though the same earth, when baked or otherwise sterilized, merely set up local irritation and abscesses. Rosenberg discovered and used a bacillus present in the substance of the nerves of tetanic individuals; Brieger employed a chemical product derived from pure cultures of the bacillus; Beumer used all these means; and Eiselsberg has recently reinvestigated the whole question.

The first impulse to research in this direction was given by Drs. Carle and Rattone, who, observing an extraordinary proportion of cases of tetanus among a number of workmen admitted to the hospital in consequence of injuries received by the fall of some old buildings in course of demolition, concluded that there must have been some common and local cause, and thought that it was most probably to be found in the dust that had entered the wounds. Inserting some of the dust gathered from the place into the subcutaneous connective tissue of various animals, they produced tetanus in the larger proportion.

Langer reported the cases of five horses who died of tetanus after castration with the same écraseur, which, having been subsequently boiled in oil, was used without ill results.

Eiselsberg, having verified by experiment the results obtained by all previous observers, comes to the conclusion that the belief in the spontaneous origin of some cases of tetanus, like those of erysipelas, is based on errors of observation, some abrasion being present though unnoticed.

The greater frequency of tetanus after wounds, especially lacerated wounds of the hands and feet, is easily accounted for by the fact that, in the acts of grasping or treading, such wounds are most likely to be attended by the entrance of dirt. —*American Journal Medical Sciences.*

AN EARLY ATAXIC SIGN.—WEISS, of Vienna, says that an early symptom of locomotor ataxia is an inability on the part of the patient to walk backward, while as yet, and in other ways, he may be able to walk with firmness and rapidity. Perron, of Bordeaux, has also, as we stated several weeks ago, recently suggested an early diagnostic sign, which is simply a modification of the Romberg test—namely, causing the suspected ataxic patient to stand upon one leg, instead of two, with the eyes closed. If the patient shows a tendency to fall, it may be inferred that the spinal trouble has begun which will lead on to locomotor ataxia, even if the Romberg test fails, as it not infrequently does in cases that are not well advanced.—*New York Medical Journal.*

HEMIANOPSIA AS A DIAGNOSTIC SIGN OF BRAIN DISEASE.—At the close of an interesting paper on the above subject the author says:

The following propositions embody the main points, together with a few to which time does not permit me to refer:

1. Lateral homonymous hemianopsia is always the result of a lesion between the chiasm and the occipital lobe, situated on the side opposite to the blind half visual fields.

2. Temporal hemianopsia is invariably the result of a lesion involving the chiasm, and probably always its central mass, though possibly its under surface.

3. Nasal hemianopsia is always the result of arterial disease, or possibly two symmetrical morbid growths, pressing on outer margins of chiasm.

4. Horizontal hemianopsia may be the result of a symmetrical lesion of both occipital lobes, so situated as to involve homologous quadrants of the retina; or possibly a lesion pressing upon the under or upper surfaces of the optic nerves.

5. Color hemianopsia is always of cortical origin.

6. The presence of the pupillary light reflex in the blind segments of the retina, proves that the lesion is back of the basal ganglia.

7. The decussation of the optic fibres in the chiasm is partial, but varies considerably in degree, thus explaining the variations in the size of the blind fields in lateral homonymous hemianopsia.

8. In temporal and nasal hemianopsia, and all other cases of hemianopsia, due to lesion in front of the basal ganglia, all forms of vision are invariably lost.

9. The macula lutea, and a variable space around it, is supplied with fibres from both hemispheres, thus explaining the pretty constant preservation of central vision, as well as variations of the boundary line between the blind and sensitive fibres of the retinæ in cases of hemianopsia.

10. Choked disc can no longer be regarded, as stated by a recent systematic writer (Ranney), as an absolute contraindication against the trephine.—McCaskey, in *American Lancet.*

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE.
PER ANNUM, IN ADVANCE $5.00
SINGLE COPIES . . . . . 10 CENTS.

Subscription may begin at any time. The safest mode of remittance is by postal or express money order, drawn to the order of THE JOURNAL. When neither is accessible, remittances may be made at the risk of the publishers, by forwarding in REGISTERED letters.

Address
JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE.,
CHICAGO, ILLINOIS.

All members of the Association should send their Annual *Dues* to the *Treasurer*, Richard J. Dunglison, M.D., Lock Box 1274, Philadelphia, Pa.

LONDON OFFICE, 57 AND 59 LUDGATE HILL.

SATURDAY, MAY 16, 1891.

THE EDITORIAL MANAGEMENT OF "THE JOURNAL."

The emphatic endorsement of the editorial and business management of THE JOURNAL by the Association in general session, and the recommendation that the same be continued were, of course, matters of extreme satisfaction to those charged with these duties, as was the unanimous concurrence of the Board of Trustees in the decision to continue the publication of THE JOURNAL at Chicago.

A very large number of the members supposed that the continued publication of THE JOURNAL in that city also ensured the continuance of its former editorial and business management. Upon this latter question its Trustees are divided, and not being able to reach a satisfactory conclusion at Washington, a special meeting is called to meet at Chicago for the final decision of the question.

In view of this fact we wish to express our sincere thanks to the profession, and especially to the medical press, for the very cordial consideration which we have received at their hands, and to state that with this number of THE JOURNAL the editorial supervision which has existed for the last two years will terminate.

THE FORTY-SECOND ANNUAL MEETING.

The annual meeting of the Association at Washington convened on May 5. The general sessions were held in Albaugh's Opera House, and the Sections were assigned to various assembly rooms in the city. DR. D. C. PATTERSON, as Chairman of the Committee of Arrangements, was everywhere present as occasion required, and discharged the duties incident to his position in a manner most admirable.

To the HONORABLE JOHN W. ROSS, one of the Commissioners of the District of Columbia, the Association was indebted for a most cordial welcome. In the course of his Address he proceeded to consider the fact that while there was a sacredness of relation between the client and his counsel barring the latter from the communication of knowledge obtained from the client, no such relation and restriction existed between the physician and his patient. He expressed his surprise that the medical profession had not required at the hands of legislators such exemption from the requirement to divulge professional secrets as obtains with the legal profession. His allusions to the Hippocratic oath were with words well chosen, and the eloquence of his delivery lent a special interest to the opening session.

The President's annual address, delivered by DR. W. T. BRIGGS, of Tennessee, was finely conceived, concisely expressed, delivered in a most creditable manner, and was received by the Association with repeated expressions of applause. He spoke of the desirability of a unification of the entire profession—referring to the organization of this Association, the work it had already accomplished, and paying a feeling tribute of respect to its few surviving founders. His recognition of the rapid advances made in this country in medical education was highly complimentary to our medical colleges, and his anticipations of a still higher standard of requirements for graduation in medicine were most hopeful. He advocated such modifications of present methods as would assure more of science and less of business in our annual meetings. He advocated the development of an additional Section, to be devoted to original research. He spoke at length upon the question of the further development of THE JOURNAL and the necessity, by means of ample remuneration, of securing the best possible representation both of talent and culture in its editorial management.

At the conclusion of his address a committee was appointed to consider its various recommendations, and report upon the same at a suitable time.

The President acquitted himself in a manner

most creditable as a presiding officer. His rulings were prompt, decisive and impartial, and commanded universal satisfaction.

The addresses which were presented in the successive morning sessions were of a high order of merit, as might have been anticipated from the known ability of the men charged with their preparation. But interesting as they were, we cannot refrain from expressing the conviction that more of the morning hours devoted to Section work would materially enhance the value of our annual sessions.

Neither time nor space will permit reference to the special work in the Sections. Our readers are referred to their several reports. The success in several of the Sections, both in the securing of valuable papers and eliciting able discussions of the same, has been beyond previous precedent. In due time their publication will attest the fact.

The receptions and entertainments were in keeping with the well known hospitality of our Capital City. That, given by the physicians of the city, at the Arlington, was largely attended and highly enjoyable. The reception given by DR. W. A. HAMMOND was also largely attended and a most cordial welcome was fully appreciated.

The report of the General Secretary will give the details of the meeting in full.

Detroit will be the next place of meeting under the presidency of DR. HENRY O. MARCY, of Massachusetts.

THE VALUE OF KOCH'S TUBERCULIN.

In surgical tuberculosis tuberculin has given more satisfactory results than in pulmonary disease. At any rate, no German surgeon has spoken of it with the want of confidence which marks a few of the reports from clinics for internal disease. In tuberculosis of bones and joints it has proven a valuable remedial adjunct if used with discrimination. Wherever the indications are that a tubercular joint requires operative measures, tuberculin is not a substitute for an operation. But in the early stages, where conservative treatment has a fair chance, the desired recovery can be obtained with much greater certainty and in a much shorter time by the use of tuberculin, in conjunction with rest and the usual means of conservative treatment. This observation, made by many surgeons, proves that in those cases, like the incipient stages of joint disease, where a spontaneous disappearance of tubercle can occur, the natural mode of repair is powerfully aided by the remedy. On the other hand, it is not unlikely that the very object, the reabsorption of the tubercular infiltration, without destruction of tissue, can be frustrated by too intense reaction. If the destruction has gone too far for conservative treatment, tuberculin alone is of no service. Whether its action can facilitate a subsequent operation by allowing the surgeon to distinguish more easily between healthy and diseased tissue, on account of the partial necrosis of the latter, has not yet been definitely decided. All observers agree that the action of tuberculin shows to best advantage after operations removing the tubercular parts. For now, if no reaction occurs, a definite guarantee of freedom from tubercle bacilli is given, which the most thorough operation does not give with equal certainty. If, however, the parts are still infected, the wounds heal and close with a rapidity which contrasts favorably with the frequent persistence of fistulæ and the not rare necessity for secondary operation after treatment without tuberculin. The published reports seem to show that in surgical cases without internal complication, tuberculin is more manageable in its effect and evidently a less dangerous agent than in phthisis and other internal localizations.

While tuberculin produces a decided local reaction in tuberculous glands, followed by their shrinkage, it does not appear as yet from any report that such glands can be completely cured, at least without operation. Occasionally they suppurate after injection, and can then be opened, healing in this way quite promptly.

The reaction to tuberculin (local as well as general), has proven the tubercular nature of various forms of disease, hitherto not known to be such. Koenigshoefer and Maschke claim to have seen local reaction, with a decided curative tendency, in a form of chronic iritis, as well as in a case of (non-syphilitic) interstitial keratitis. Their reports, however, are not complete enough to be convincing. More reliance may be placed in the same authors' statements concerning the curative effects of the lymph in a case of conjunctival disease, closely resembling trachoma. They also found that corneal ulcers in scrofulous children react favorably to tuberculin. The same observation has been made, as to the reaction of cor-

neal infiltration at least, in *some* of the scrofulous cases by Uhthof (and also by the writer). Several reports from other hospitals also state that in a few instances, under the tuberculin treatment, an ulcer developed in the cornea, which healed with a promptness suggesting its tubercular nature and the influence of the agent upon it. A very striking instance of tubercular tumor of the uvea is described by Landgraf, which disappeared completely by absorption in consequence of thirty-five injections made in the course of six weeks.

In looking for an explanation of the action of tuberculin it must be remembered that the substance does not directly destroy the bacilli in the tissues. This statement made by KOCH has been corroborated by ISRAEL, SCHIMMELBUSCH and others, by inoculating animals successfully with tubercular material taken from patients under the tuberculin treatment.

As KOCH stated originally, tuberculin acts not upon the bacilli, but upon the tubercular tissue. Coagulation necrosis, which KOCH referred to as the result of the remedy upon the diseased part, has not been found to occur in the human subject except as the result of an excessively intense reaction, and then only occasionally. Patches of skin in lupus and granulations in fungus joints may become necrotic in mass, but this is an exception rather than the rule. In most instances of post-mortem examinations and of specimens taken from the skin of lupus patients under the action of the agent no evidences of necrosis of any of the cells constituting the tubercle have been found. But clinical as well as microscopical observation shows that tuberculin causes an inflammatory process in and around the tubercular part. There is intense congestion and effusion of serum with more or less white corpuscles. The effused serum forms minute vesicles under the epithelium over the lupus nodule, and even detaches the epithelium ultimately. When the transient inflammation has subsided the previous histological condition is apparently restored. The tubercles and the bacilli they harbor are still there. But after repeated inflammatory reactions SCHIMMELBUSCH has found the lupus nodules gradually shrinking. More advanced reparative changes have been found by RINDFLEISCH in tubercular ulcers of the intestines in subjects dying of pulmonary phthisis. Here the characteristic grayish-yellow coating of the ulcers was disappearing or had disappeared, and their surface was livid with healthy-looking granulations which were cicatrizing from the margins. The microscope showed still the presence of the typical cells of the tubercle, the giant and epitheloid cells, but these were changing their shape into that of a spindle, evidently become transformed into connective tissue. RINDFLEISCH interprets the appearances as denoting an immunity of the tissue against the destructive action of the bacilli.

It must not be overlooked that tuberculin exercises an influence upon the the entire tubercular organism, as well as a local effect upon the tubercular tissue. The tubercular subject suffers at certain stages of the disease from constitutional symptoms, like the loss of strength, regular and irregular fever and night-sweats, which can only be construed as the result of systemic poisoning by the products of the tubercle bacilli. These symptoms have in many patients been stopped by tuberculin before the tubercular infiltration had disappeared. It must hence be inferred that the remedy either checks the further formation of poisons by the bacilli—a view not supported by any other evidence—or that it renders the body insusceptible to their action. In view of the similar state of facts as proven to be the cause of experimental immunity in tetanus and in the diphtheria, the last explanation has a good deal of probability. Unfortunately we cannot predict in every case that tuberculin will lead to such a result, or that such immunity from poisoning once established will be permanent. It must be left to future researches to decide what special conditions interfere with the specific curative influence which tuberculin can in certain instances exert upon tubercular disease.

THE THERAPEUTICAL VALUE OF SUSPENSION IN DISEASES OF THE SPINAL CORD.

It cannot yet be said that the question of the utility of suspension in treating patients afflicted with posterior spinal sclerosis, as well as some other diseases of the spinal cord, is settled. Conflicting reports are still published regarding the influence the procedure exercises on the spinal cord; some accepting HORSLEY'S experiments that showed it was impossible to stretch the cord during life by any manipulation; and during the past year DR. JAMES COGNEY published a paper in

which he reported experiments on the living and dead subject that showed that a total shortening of the spinal cord was obtained in suspension, that in the lumbar region the cord was unaffected or slightly relaxed, in the cervical region the membranes were slightly stretched, and in the dorsal region the cord was shortened; hence suspension caused relaxation, not stretching, and the former possibly acted mechanically by breaking down adhesions and removing impediments to the circulation. This reversal of the generally accepted theory is diametrically opposite to the results of BONUZZI'S experiments, in which a body lengthening of two to three centimetres was found to occur in suspension, and by opening the spinal canal a needle placed in the cord was lowered, from eight to twelve millimetres during suspension, the cord was made thinner and more resistent and the cauda equina very tense; the tension of the cerebro spinal fluid was increased and there were venous congestion and increased rapidity of the circulation. These experiments concur in the main with those of MOTSCHUTKOVSKY.

DR. LUMBROSO has experimented with animals, finding a very evident elongation of the vertebral column and the cord, as well as an anæmia with subsequent vascular congestion of the meninges and cord that attained a maximum intensity not at the moment of suspension, but afterward. He advises suspension of short duration as the spinal anæmia observed might be dangerous if protracted; the traction should be graduated by the weight of the patient; and the séance should last for a few seconds in the beginning, gradually being increased to one or two minutes, each séance being followed by an interval of from forty-eight to seventy-two hours. Not only has this treatment benefited ataxic patients, but also patients having infantile paralysis, amyotrophic lateral sclerosis, progressive muscular atrophy, etc.

ALTICHIERI reported during the past year one hundred and seventy-four cases of ataxia in which suspension improved the patient in one hundred and twenty-eight cases, produced no result in twenty-six, and in twenty cases the treatment was interrupted. In pseudo-tabes and impotence he found this treatment very valuable; while in paralysis agitans, disseminated and lateral sclerosis, and chronic myelitis his results were too variable.

GILLES DE LA TOURETTE finds that paralysis agitans in the middle period of the disease, chronic sciatica, and ataxia are benefited by suspension. In the latter diseases one fourth of the cases are greatly improved, thirty-five per cent. are benefited moderately, and forty per cent are not benefited.

ROSENBAUM obtained in seventy-six cases of ataxia, improvement in twenty-five, doubtful results in nine, no improvement in twenty-seven, and in fifteen cases treatment was interrupted. In four cases of myelitis, three of paralysis agitans, one of disseminated sclerosis, and one of lumbago, no benefit followed this treatment.

BENEDIKT in two and TIBERGHIEN in twenty-six cases reported favorable results from suspension.

These figures show that during recent months the therapeutic application of suspension has not lapsed into desuetude, and a more careful study will probably indicate what class of cases will be most benefited by it. Certainly anything that will ameliorate more or less distressing symptoms in sixty per cent. of ataxic cases should not be relegated to the lumber-room of therapeutical appliances.

"CROWNER'S QUEST LAW."

A New York daily has begun to stir up the coroner's office with a long pole, perhaps with no higher aim than to amuse the public with a sensation, but yet some good may result. The charges of inefficiency, ignorance and indifference are somewhat sweeping, and the proposal to delegate the functions of the office to the police rather preposterous. The intimation that autopsies are much to infrequent may be true, but the time was not long ago when a counter-charge was on the popular tongue, and special legislation was invoked for the cutting off of the fees, which resulted in making searching examinations discretionary. Increase of population we cannot but admit has really demanded more work and speedier dispatch in its performance. Besides, too, in communities polyglot in character and of a somewhat feeble public virtue, political plums are expected to grow on every tree. Herein lay the root of the evil.

The office itself is a relic of antiquity and, as the name imports, originally represented the

Crown, its sole function being the detection of crime. Thus from time immemorial a glamour has clung to it like a nimbus and inspired a vague dread of consequences to the extent of the common refusal of cutting down a swinging suicide with the remote probability of saving life. Too much legislation has been wasted in attempting to keep up this office, which should have been left to expire of its own volition. All the errors, according to our idea, belong inherently to the office itself more than to its administration. Certain of the verdicts rendered have partaken of the grotesque and have profited the profession very little,—the officials in the main have been nominated on account of their party zeal and not for their intelligence; their subordinates have been obliged to perform their responsible duties in a perfunctory way, and an easy-going public have fallen upon the conclusion that the dead need no avengers. The remedy lay in the appointment of physicians, probably avouched for by health boards, medical examiners in very truth, such as Massachusetts has set up as models by way of an experiment. The world has become wise enough to intrust the profession with these its proper duties, and so give opportunities for contributions to pathology by all those incumbents who are content to exchange emolument for the ambition of beneficence. When all this is accomplished the verdict "Heart Failure" will take its place alongside of the more pious one of "Visitation of God," and floating corpses will not all have once been animated by inebriates, who have tottered down into the sewer-tainted rivers of those cities whose aspirations are chiefly commercial.

EDITORIAL NOTES.

A Distant Witness for Vaccination.—Small-pox was carried by a vessel to Ooshooia, near the southern extremity of Terra del Fuego. At that point there is a mission settlement containing about 150 natives, under the care of Mr. E. C. Aspinall, medical superintendent, and five other English ladies and gentlemen. A single case was left by a Buenos Ayres Captain, near Ooshooia, and all the natives were made, in spite of the protest of Mr. Aspinall, to load the vessel with wood for its return to Buenos Ayres. The consequence was an epidemic of not less than sixteen cases—the disease not being surely spent at the time of the last writing—with nine deaths. The mission church was emptied and converted into a hospital. In order to keep the natives from being exposed to the sick or the dead the white people served them, did the nursing, dug the graves and buried the bodies. Fortunately vaccine was not wanting and it was applied at Ooshooia and adjacent plantations among both the Europeans and their native employés. Notwithstanding the vaccinations some of the natives have taken the varioloid, but all the deaths by small-pox occurred among those natives who had not been so treated, or who had been vaccinated after the infection had taken place.

The Ebb of Influenza.—Influenza, with fatal results, is now prevailing throughout Britain. It has not shown itself so much in London as in the outlying districts, yet there is ample time for its extensive prevalence in the metropolis, for it is only in the first stages of its re-manifestation.

Grants for Scientific Investigations.—The British Medical Association announces its readiness to receive applications from its members who desire aid in furthering particular research. This patronage of a great association is no small incentive to the hardy and delving medical mind, and certainly will not be without its honest and far reaching outcome—more noble and more comprehensive than mortal sense has power to appreciate.

The Therapeutic Poverty of Fifty Years Ago.—Dr. John Kent Spender, of Bath, a very pleasing writer on therapeutical subjects, has contributed to the *Practitioner*, London, some reflections on the poverty of the profession fifty years ago, in the matter of drugs, as compared with the embarrassment of riches now-a-days. Diseases were then called "incurable" simply because we had not yet discovered the means of curing them. Our medical poverty, in and about 1840, was such that when "crying sufferers entreated us, we could only confess our impotence to help them. There were whole domains of work in which we seemed no better off than Scott's north-country doctor, who boasted of his 'twa simples of calamy and laudamy.' And we were chilled by that therapeutic nihilism which began in the school of Vienna, and has infected a large number of practitioners in all parts of the

world." Pathology with its microscope, diagnosis with its verifying post-mortem, and a laughing skepticism ruled the courts of medicine, for the secrets of healing had not been disclosed. But now we employ our therapeutic possessions as if we trusted them, and we lean upon the rock of physiological experiment and clinical observation. The doubter and the scorner may be with us still, but they have become reticent and retiring in the face of a constantly strengthening array of therapeutic forces. To Sir Thomas Watson and Dr. Latham the profession is largely indebted for indoctrinating that more humane philosophy that the sick have the rights of being cured by earnestness and faithfulness in the application of remedies.

"INTERNATIONAL CLINICS."—J. B. Lippincott Company will, beginning with April, issue quarterly thereafter a work entitled "International Clinics." This work will comprise the best and most practical clinical lectures on medicine, surgery, gynecology, pediatrics, dermatology, laryngology, ophthalmology and otology, delivered in the leading medical colleges of this country, Great Britain and Canada. These lectures have been reported by competent medical stenographers and thoroughly revised by the professors and lecturers themselves. The object of the work is to furnish the busy practitioner and medical student with the best and most practical clinical instruction in concise form. Each volume will consist of over 350 octavo pages, illustrated with photographic reproductions of important cases.

THE PLACE AND VALUE OF TUBERCULIN.—It is not probable that this question will long remain in the present indefinite condition. Reports covering many hundreds of cases, under different hospital management, and under climatic and general hygienic variations, are being rapidly advanced. The "sum" will show the "substance," and the eager public, as well as the earnest physician, will have the foundation of experimental fact upon which to rest their prayerful hopes and sanguine anticipations.

THE ACTION OF COCAINE ON THE CIRCULATION.—As a result of painstaking study in the direction of ascertaining—experimentally—the exact effects of the drug cocaine upon the circulatory system, Dr. Edward T. Reichert (*American Lancet*) arrives at the following important conclusions: 1. Very much depends upon the individual susceptibility in noting the medicinal effects. 2. Repeated small doses first decrease, then increase, and finally decrease the pulse-rate. 3. The cardio-inhibitory centres are always affected. 4. The arterial pressure is always increased, unless after large doses, when temporary decrease may happen. This increased arterial pressure may continue longer than the period of acceleration of the heart beat. This increase is chiefly due to stimulation of the vaso-motor centres, to some stimulation of the vessel-walls, and to the increased pulse-rate. These and other noted results show, 5, that cocaine is a decided circulatory stimulant.

MEDICAL ITEMS.

HONORS FOR VIRCHOW.—At the last meeting of the German Congress of Internal Medicine, honorary membership was extended to Virchow on the occasion of his 70th birthday anniversary.

GOETHE AS AN ANATOMIST.—Recent correspondence to the *British Medical Journal* says.—"Professor Bardeleben, of Jena, has found amongst Goethe's unpublished papers in Weimar an essay "On the Comparative Anatomy of the Skull of Mammalia," written throughout in Goethe's own hand. The essay is dated 1794."

RELATIVE FREQUENCY OF GALL-STONE IN THE SEXES.—Dr. Furbinger, in his paper read before the last session of the German Congress of Internal Medicine, analyzed the histories of sixty-four cases of gall-stone treated by him at the Friedrichshain Hospital, and of this number thirteen were males and fifty-one females.

ANOTHER CONSUMPTION CURE.—It is now announced that M. Germain-Sée has developed a method of cure for this great bane. Germain-Sée places his patients for several hours daily in a hermatically closed chamber into which a current of compressed and medicated air is slowly admitted. The air is medicated by passing it through a mixture of creasote and eucalyptol. Results are to appear later.

QUININE BY SYNTHESIS.—Two Frenchmen, MM. Grimaux and Arnaud, announce that they have discovered a synthetical method of preparing quinine.

AMERICAN MEDICAL ASSOCIATION.

Forty-second Annual Meeting, held at Washington, D. C., May 5-8, 1891.

General Session—First Day.

The Association assembled May 5 at Albaugh's Opera House, Washington, D. C., at 10 A.M. It was called to order by Dr. D. C. Patterson, Chairman of the Committee of Arrangements; who introduced Rev. S. M. Newman, D.D., of the First Congregational Church, who offered a prayer. The Hon. John W. Ross, Commissioner of the District of Columbia, welcomed the Association to Washington. The Chairman of the Committee of Arrangements, announced the programme and other arrangements for the meetings.

The President, Dr. William T. Briggs, Tenn., took the Chair, supported by Vice-President Dr. C. A. Lindsley, Conn., and ex Presidents Drs. T. G. Richardson, W. W. Dawson and P. O. Hooper.

The President then delivered the

ANNUAL ADDRESS.

(See page 649.)

On motion of Dr. J. C. Culbertson, O., thanks were tendered the President for his able address, and a committee of five was appointed to develop the points therein, and to report to the Association the last day of the meeting. Committee—Drs. Culbertson, Hooper, Moyer, Marcy and Connor.

Dr. Hooper, of the Board of Trustees, presented a preliminary report from that body.

To the President and Members of the American Medical Association:

The Board of Trustees have the honor to make a preliminary report on the question of location of THE JOURNAL.

At a special meeting of the Board, held in November, 1890, the Trustees, having individual views as to the best method of strengthening THE JOURNAL, resolved to recommend, first, an established home; second, that that place of permanent establishment be the National Capital. After free discussion and interchange of views, it was resolved to submit the question to the members of the Association, through the columns of THE JOURNAL, before making their final report. The result of that course of action has been to convince them that the majority of the members desire that the place of publication shall continue to be in Chicago. They, therefore, in obedience to that expressed opinion, hereby report that Chicago is the undoubted choice of the Association as the place of publication of THE JOURNAL.

The undue excitement that has taken place in regard to the matter, and the sectional antagonism that has been engendered, is to be deprecated, but the controversy has strengthened THE JOURNAL by increasing the subscribers, and stimulating the interest of members heretofore lukewarm, and they make this preliminary report in order to promote harmony in the meeting, quiet misapprehension, and give due notice of this action in advance of the regular report.

P. O. HOOPER, Pres't.
JOHN B. HAMILTON, Sec'y.

On motion, the report was received with thanks, and unanimously adopted.

The amendment offered by Dr. A. L. Gihon, U. S. Navy, at the last meeting, was then taken up. "To amend the By-Laws so as to make the General Sessions commence on Wednesday, in place of Tuesday."

A motion by Dr. X. C. Scott, Ohio, to lay the amendment on the table, was lost.

On motion of Dr. I. N. Quimby, N. J., the subject was laid over until 11.30 A.M. on Wednesday.

Dr. Barrington, of Ireland, was, on motion of Dr. R. Reyburn, D. C., made a member by invitation.

Dr. N. S. Davis, Ill., announced that the American Medical Temperance Association would meet at G. A. R. Hall on Thursday, at 9 A.M., and invited all to join the Association.

Dr. Gihon then read the report of the Rush Monument Fund.

REPORT OF RUSH MONUMENT COMMITTEE.

For the seventh time, after as many years, the Rush Monument Committee are only able to report *progress*, but progress so slow that seven times seven years, at this rate, will find the end still unattained which, seven years ago, seemed to be a matter of only as many months.

Those of you who were present at the Washington meeting in May, 1884, when the idea of this monument was broached, will remember with what alacrity the proposition was received. The large body of delegates and members in attendance, at that meeting, were struck, as you cannot fail to be, when you visit the manifold attractions of this beautiful Capital, by the fact that, in this city of monumental memorials of the distinguished Fathers of the Republic, there is not one of any medical man. Is this, repeating language heretofore used, because among the patriotic builders of this nation, our profession has not furnished one? Are painters and sculptors, presidents and judges, generals and admirals, scientists and discoverers, teachers and divines, philanthropists and politicians only those who have deserved this recognition from their country? Has there been no great doctor in medicine whose life has been as exemplary, whose patriotism as exalted, whose fame as extended as any of these men whose marble effigies confront us in whatever direction we look in this sanctuary centre of our

great country? Or is it that Medicine, alone among the professions, fails to honor its own sons and give them royal acclaim for royal deeds?

During the seven years in which your Committee have been employed upon the unwelcome task of soliciting contributions for this monument, which this Association has year after year commended with enthusiasm, two facts have become patent: *first*, that the events of our National history of which the achievements of American physicians were important parts, are not made matters of medical education, else the name of Benjamin Rush would be a household word in every doctor's dwelling in the country; and *second*, that in the city which he honored with his residence, life-work and heroic sacrifice unto death, petty animosities and jealous rivalries have survived, in the descendants of men of lesser light and lesser renown, to harden their hearts and tighten their purse-strings, in refusing to honor the name and perpetuate the memory of one whom great physicians of this day declare to have been the greatest physician, patriot, philosopher and philanthropist, all in one, which this country has ever produced.

Disheartened at the slow increase of the Rush Monument Fund, especially when statues of later inception were being completed to men of other callings in this country, for labors that were not distinctively National, and to physicians, in foreign lands, whose services to humanity were far less valuable, your Committee sought advice as to better or more practical methods of operation. One suggested by an eminent promoter of charitable enterprises seemed to them worthy of trial —the distribution of "coin cards," or cards containing a space in which a silver half-dollar could be placed by the contributor. To spare them all trouble whatsoever, a stamped envelope, printed with the Treasurer's address, was printed, that he might have nothing more to do than place a half-dollar in the space in the card, inclose that in the envelope, seal and drop it in the nearest mail box.

Your Committee deemed it expedient to begin the distribution of these cards in Philadelphia, with which the name of Rush is identified, in the hope that there where his active life was passed, and where a local memorial—the Rush Library, recalls his prominence in medical literature, there would be such generous response to your Committee's application, that they could go to other cities and places, with these first fruits, as earnest of what might be done everywhere.

Accordingly, the following letter was addressed in my own hand to 1,770 individuals in the city of Philadelphia:

Dear Doctor:—I beg to make, hereby, a final appeal to you, as a member of the medical profession in the city of Philadelphia, to contribute in behalf of the monument to be erected at the National Capital to the renowned patriot, Dr. Benjamin Rush, whom one of your distinguished colleagues declares to have been "the greatest physician this country has ever produced."

The liberality with which Philadelphians contribute to this memorial of one of the greatest men to whom their city has ever given birth, will be evidence to other sections of the country of the esteem in which he is held by the people of his own home. I, therefore, most earnestly solicit you to inclose whatever you may feel disposed to give, whether check, banknote, or only a half dollar coin to be placed in the space in the card, in the within envelope, mailing it by return post as addressed. Should you have already contributed all you intend, or should you conclude to give nothing, will you kindly oblige the Committee by remailing the envelope, with enclosed card, that the latter may be used elsewhere? Very respectfully, for the Committee,

ALBERT L. GIHON, Chairman.

But notwithstanding the request, "should you have already contributed all you intend, or should you conclude to give nothing, will you still kindly oblige the Committee by remailing the envelope, with inclosed card, that the latter may be used elsewhere?" and the fact that a stamped two cent envelope, bearing the Treasurer's printed address, was inclosed for the purpose, more than 1,600 were never returned. About 160 responded, making, with the 40 Philadelphians who had previously contributed, about 200 in all, or only 11 per centum of our profession in that city, who have exhibited any interest in this work. The cost of circular letter, cards, envelopes, stamps and folding, was $95, the sum received $150, a net gain of about $55, a not very encouraging yield from so wide a field of operation as this million peopled city. Being a Philadelphian, the Chairman of your Committee was absolutely sure that we would get the half-dollar from at least 1,500 of the physicians addressed, but we have actually had only two responses from the doctors, who rejoice in *feminine* Christian names, who we were positive would outdo their brother medicoes in liberality, as they do in all the other virtues.

In the light of this experiment, what then is to be done? Abandon the undertaking? Never! The fund already accumulated is a sacred trust, which can be diverted to no other purpose. There is no reason to apprehend that Congress will be less liberal than it has been to other projects of this kind; and if it donate a pedestal appropriate for such a statue as the medical profession of 106,000 members ought to erect, who will care to see a $2,000 statue surmounting a pedestal costing $25,000 as that of the McPherson statue did, or $30,000 like that of the Garfield Monument?

The seed has been planted, and if properly cared for, it is bound to grow, and except you be dissatisfied with our tillings of the soil, we shall persevere through this and many summers more. It was forty-three years from its inception before the beautiful shaft of the Monument to Washington graced the twilight sky of the Potomac's banks, and though some of us can not hope to live until forty-three years shall have passed to

see the noble features of this great physician, whose name one need not hesitate to utter where that of Washington rings, upon the generation, which shall then visit the Army Medical Library and Museum, and find his effigy its greatest ornament; still while we may live, we pledge ourselves to labor to this end, so long as this Association shall honor us with its stewardship, aspiring to no other reward than to have succeeded in rearing in imperishable bronze or enduring stone, the figure of this great man, the model physician, the worthy citizen, the brave patriot, the gallant officer and broad-minded philanthropist, whom it is every American medical man's duty to reverently honor.

Why should Americans alone among the physicians of the world be indifferent to the glorifying of their illustrious dead? The Italians have within three years, erected at Milan, their monument to their patriot physician, Agostino Bertani, a splendid bronze statue by their great artist Vela, besides placing a marble tablet on the facade of his home in Genoa. The recent Congress of Russian medical men at Moscow determined, with great enthusiasm, to erect a monument as a national memorial to Nicolai Ivanecoitsch Pirogow, the Thinker-Surgeon, whose 71 years ended only ten years ago. A Committee of French physicians has just been organized, with Professor Fourmier as its President, to do, as we have been so long striving, raise a monument to Philippe Ricord, and subscriptions are reported to be coming in spontaneously and rapidly. At Giessen in Ober Hesse, the scene of his famous labors, on the 23d of last July, a white marble statue was erected to Liebig, larger than life size and ornamented with figures, emblematic of science and culture, and another is projected at Halle, in Saxon Prussia, to Professor Richard von Volkmann, for which subscriptions are being gathered in America, and to which one American Association was on the point of contributing when a member pertinently suggested that at least an equal sum be contributed to the Rush Monument—so neither got any. A few days ago, the papers announced "contributions have been made already in and about Boston alone, by the following physicians," mentioning twenty names, aggregating $245.00 for the *Virchow* Testimonial Fund. German physicians also liberally contributed to the life-size monument in bronze to the late Emperor Frederick II, erected in the quadrangle of the Protestant Hospital at Kaiserslantem.

Why should physicians alone in this country object to do public honor to their conspicuously great men in their profession? The New York Academy of Sciences projects a monument to Audubon, and eleven members at once subscribe $100 each, and in a time, incredibly brief by comparison, $2,733.50 are collected. The Printers' Union is raising funds for a second colossal statue to Greeley, the first by Ward having long adorned the entrance to the Tribune Building in New York. Deaf-mutes planned and executed their monument to Gallaudet standing on Kendal Green, where you all will doubtless see it, and this since we have been talking about our statue. The members of the legal profession have their $40,000 monument to Chief Justice Marshall, at the approach to the Capitol, and Story's classic figure of Professor Henry stands near Smithsonian Institution as ours of Rush should stand near the National Medical Library and Museum. A few Brooklyn Protestants have built a monument to Beecher and in one night $1,700 were subscribed by Roman Catholics in New York City alone for the bronze statue of Archbishop Hughes at Fordham, $20,000 being promised before the end of June.

But the list would be a long one were we to enumerate all the monuments that are proposed in this country. Your Committee have not advocated a monument to Rush as in rivalry to any other man. The monument is not to Rush the preëminent individual, as to Rush, the symbol of medical patriotism—the visible expression of the fact that the profession of medicine has contributed its great man—are of its great men, if you please—clothed in his professional garb, to uphold the standard of freedom in the foremost rank of the brave defenders of this new nation, and keep it there through all the strife of the Revolution. This Rush did, and later became one of the framers of that venerated instrument, on which the fabric of our nationality is built, the Federal Constitution. For this, he has been chosen to have a place among the sculptured heroes of that time, by whose silent presence, as by their fearless speech when living, they may illustrate to posterity what the purest patriotism and public spirit mean.

Your Committee appeal not for money only, but for collaborators—for volunteer associates, who will act with them as fellow Committee men, each in his own town, and by earnest personal effort aid them in their uphill work. The Association has already given them authority to add to their numbers, and your Committee now ask such of you as care to do this labor of love to give your names and addresses to their Secretary, Professor Rohé, with the assurance of your active coöperation. The Washington Monument was mired eleven years. The Rush Monument is making scarcely greater progress, but with your willing shoulders to the wheel, it will, in good time, soon make triumphant advance.

ALBERT L. GIHON,
Medical Director U. S. Navy, Chairman Rush Monument Committee.

On motion of Dr. H. D. Holton, Vermont, the report was received and the committee continued.

The Permanent Secretary read the report of the Treasurer:

TREASURER'S REPORT.

The treasurer has the honor to report that the balance in the treasury of the Association is $9,427.21. The statement of the account will be published as usual in the columns of THE JOURNAL of the Association. All of which is respectfully submitted.

RICHD. J. DUNGLISON, Treasurer.

May 5, 1891.

On motion it was received and adopted.

Dr. L. D. Bulkley, New York, as Chairman of Section on Dermatology, etc., explained why no papers were on the programme for that Section, and moved that said Section be dispensed with.

As this would have required an amendment to the By-laws it was laid over. (Subsequently Dr. B. announced a meeting on Wednesday and the offer of sundry papers for that Section.)

On motion of Dr. C. G. Comegys, Ohio, it was

Resolved, That a committee of three be appointed by the President to consider the question of petitioning the next Congress to create a cabinet officer to be known as the Secretary of Public Health. The report of this committee to be presented on Thursday morning.

Committee—Drs. Comegys, N. S. Davis and T. G. Richardson.

On motion of Dr. L. Connor, Mich., it was

Resolved, That each Section at this meeting be requested to appoint a committee of three which shall meet at the Arlington, May 6, at 9 A.M., to consult as to the best measures for promoting the interests of the Sections, and the best means for securing the adoption of the same.

On motion of Dr. Dudley S. Reynolds, Ky., it was

Resolved, that the Supervising Editor of THE JOURNAL be instructed to secure stenographic reports of the proceedings of each of the several Sections of this Association, and that the Trustees be instructed to set apart a sufficient sum, not exceeding one thousand dollars, annually for that purpose. This resolution to take effect at and after the present session.

On motion of Dr. Chas. A. L. Reed, Ohio, it was

Resolved, That the American Medical Association hereby extends a cordial invitation to the medical profession of the Western Hemisphere to assemble in the United States in a Continental American Medical Congress.

Resolved, That the Committee on Nominations be and is hereby instructed to nominate one member for each State and territory, and one each for the Army, Navy, and Marine-Hospital Service, who shall constitute a committee which is hereby instructed to effect a permanent organization of the proposed Continental American Medical Congress and to determine the time and place at which the same shall be held.

Resolved, That the Committee on Nominations be and is hereby further instructed to report the nominations pursuant to the foregoing resolution at the general session on Thursday morning.

On motion a recess was taken to allow the States to assemble and select their members for the Nominating Committee.

Ala., J. C. Lagrange; Ark., J. M. Keller; Cal., Simmons; Conn., C. A. Lindsley; D. C., G. W. Cooke; Del., Wm. Marshall; Fla., W. E. Anderson; Ga., W. F. McRae; Ill., G. W. Webster; Ind., A. M. Owen; Iowa, G. F. Jenkins; Ky., W. H. Wathen; La., T. G. Richardson; Mass., A. P. Clark; Md., T. S. Latimer; Mich., H. O. Walker; Minn.—; Miss., B. A. Duncan; Mo., I. N. Love; N. C., C. J. O'Hagan; N. H., Irving A. Watson; N. J., B. A. Watson; N. Y., John Cronyn; Neb., J. O. Carter; Ohio, C. A. L. Reed; Pa., E. Jackson; S. C., T. J. McKie; S. Dak., W. M. Kaull; Tenn., G. C. Savage; Tex., J. W. Carhart; Vt., D. C. Hawley; Va., W. L. Robinson; W. Va., G. A. Aschman; Wis., J. B. Whiting; U. S. Army,—; U. S. Navy, J. M. Flint; U. S. Marine-Hospital Service., J. B. Hamilton.

After some discussion on motion of Dr. Hamilton the committee was requested to meet at the Arlington at 7 this evening.

SECOND DAY, MAY 6.

The Association assembled at 10 A.M., President Briggs in the chair.

Prayer was offered by Rev. Father Richards, of Georgetown University.

The Chairman announced certain additional arrangements and invitations.

Dr. E. L. Shurly, Mich., read the *Address on Medicine* (see page 721).

The Librarian read his report, which was received and the appended suggestion adopted.

The amendment of Dr. Gihon being in order he again addressed the Association. After much discussion by Drs. Quimby, Scott, Davis, Vaughan, Bishop and Ross, on motion of Dr. J. H. Murphy, Minn., the amendment was finally laid upon the table.

The amendment offered by Dr. X. C. Scott, Ohio, to abolish the Committee on State Medicine, inasmuch as the work was done by the Section on State Medicine, was taken up.

Dr. A. N. Bell, N. Y., moved to amend by saying that this Section should nominate to the Association the persons to constitute the committee. Dr. N. S. Davis, Ill., offered an amendment which was accepted by Dr. Bell, that the nomination be changed in the laws from the Nominating Committee to the Section on State Medicine. This was unanimously adopted.

The amendment offered by Dr. E. A. Wood, Pa., to "omit the word Physiology from the title of the Section on Practice of Medicine, etc.," and form a new Section on Physiology and Dietetics, was almost unanimously adopted.

The amendment offered by Dr. J. C. Culbertson, Ohio, being up, Dr. R. Harvey Reed, Ohio, offered to amend by substitute, when Dr. N. S. Davis, Ill., offered the following:

Resolved, That the proposed amendments concerning the recognition of State and other medical societies as

branches of the American Medical Association be referred to a committee of five to be appointed by the President, and that said committee shall confer with the State and other societies concerning the desirability of such change, and if desirable, as to the collection or payment of dues and other details necessarily involved in the proposed change, and report at the next annual meeting.

This was unanimously adopted.

The amendment of Dr. W. H. Daly, Pa., making the permanent members equal in all rights to delegates was, on motion of Dr. J. E. Woodbridge, Ohio, laid on the table.

The following from the State Medical Society of West Virginia was read by the Permanent Secretary:

To the American Medical Association:

At the annual meeting of the State Medical Society of West Virginia, June 11, 1890, a committee was appointed to memorialize the State Societies of adjoining States, and the American Medical Association, upon the subject of the relations of contract surgeons of the different railroad systems to the general profession, and to ask these Societies to consider how far the rules adopted by railroad corporations for the government of the surgeons in their service, infringe upon the rights of the profession at large, as set forth in the Code of Ethics of the American Medical Association. It is well known that large bodies of men are in the employ of these corporations; that these men live in widely scattered communities, and that these corporations have established systems of contract surgeons to attend to employés and passengers injured by accidents occurring while in their employ, or care as passengers. It is also well known that these corporations have adopted rules for the government of these surgeons and of those injured, directing that these surgeons assume entire charge of such employés or passengers, when injured, regardless of the rights of any outside medical man who may have been summoned, and is in attendance upon such persons prior to the arrival of the company's surgeon, even if, in addition, the physician first in attendance be the family and personal attendant of the party injured, and in most cases have served a notice to this effect on the general profession. For instance: Section 4 of General Order No. 2 of the Baltimore and Ohio Railroad Relief Department, says: "Upon the arrival of the company's surgeon and taking charge of the patient, the called surgeon, if one has been called, shall be distinctly notified by the company's surgeon, and by the officer in charge, that the company will be no longer responsible for his attendance or service, and that they are no longer required." In Section 5 of the same company's instructions, it says: "Company's surgeons, upon arriving at the place of accident, will take exclusive charge of the case, and entirely relieve any surgeon, other than the one under contract with the company, from further care or attendance. The called surgeon shall be distinctly notified by the company's surgeon and the officer in charge, that the company will be no longer responsible for his attendance or services. Should the patient prefer the services of a surgeon other than the one provided by the company, it must be distinctly understood by the patient and the said surgeon that neither the company nor the Relief Association will be responsible for the services rendered."

To the majority of the State Society this appears to place the physicians in direct conflict with Section 6 of Article 5 of the Code of Ethics, and causes infringements upon the rights of physicians first called, who charitably respond to such calls, while knowing the rules of the company, because of the urgency of the case.

Again, in the establishment of these systems of contract surgeons, we believe the practice of accepting passes as compensation, in lieu of the regular fees customary to the profession, is detrimental to the best interests of the profession, by lowering the standard of the values of surgical services, and further demoralizing, because it gives to these wealthy corporations services at far less rates than the profession charges to individuals for like services, and further, that these corporations come under that part of Section 3 of Article 1, relating to the duties of the profession to the public, and *vice versa*, which exempts institutions endowed by rich individuals, societies for mutual benefit, for the insurance of lives, etc., from the privileges set forth in Section 1 and Section 2 of the same article.

Further, it seems to your memorialists, that if members of the profession are left to make contracts to furnish an unlimited service of the kind required, for passes, and in some cases small fixed money payments, with these large corporations, without affecting their ethical standing, all stigma of unprofessional or unethical conduct should be removed from those of the profession who contract with private individuals to furnish medical or surgical services, including medicines, by the year or month, at fixed sums.

In conclusion, we hope your Society will consider this subject, and if agreeing with us that this is an evil, join us in bringing this to the American Medical Association for it to decide what action, if any, is proper under the circumstances.

The foregoing is respectfully submitted in behalf of the Committee appointed as before stated.

WESLEY H. SHARP, M.D.,
Chairman of Committee.

Parkersburg, W. Va., November 28, 1890.

Dr. J. E. Woodbridge moved to refer to a committee of one from each State Society in affiliation with this Association.

Dr. R. Harvey Reed moved to amend by saying "two, one of these to be a railroad surgeon." Thus both sides could be heard.

After discussion by Drs. Quimby and Scott, on motion of Dr. Adamson, Kentucky, the amendment was laid on the table. The original motion was then adopted.

Dr. Gihon moved that the address of the President of the Association shall be delivered at the general session on Wednesday.

On motion of Dr. X. C. Scott, this was laid on the table.

THIRD DAY, MAY 7.

The President called the Association to order at 10 A.M.

Prayer was offered by Rev. W. A. Bartlett, D.D.

The Chairman of Committee of Arrangements announced the business of the day.

The Permanent Secretary read

THE ADDITIONAL REPORT OF THE BOARD OF TRUSTEES.

The Board of Trustees of the American Medical Association respectfully submit the following report, in regard to the financial affairs of the Association, and of THE JOURNAL for the year ended March 31, 1891. THE JOURNAL has been published and regularly issued at its place of publication, and now has a weekly edition of 5,450 copies, of which 4,048 copies are supplied

to members, and the remainder to subscribers, advertisers, exchanges, etc.

The cost of publication and editorial expenses for the year has been $23 337.97. The receipts at the office from all sources amount to $14,464.59. Amount drawn from treasury of the Association, $8,909.38, leaving a balance in the hands of the Board $762.40. At the same time there was in the hands of the Association Treasurer, $4503.39. Making a total, March 31, 1891, available, of $5,265.79. Full detailed exhibit of receipts and expenditures accompany this report, as reported by the Treasurer.

The editorial management of THE JOURNAL has continued as heretofore under the direction of the Board, no editor having been appointed, the resident member of the Board acting in the capacity of supervising editor, and employing such editorial writers as in his judgment the occasion required.

The Association having practically passed upon the question of location, it is still the opinion of the Board that a suitable building for THE JOURNAL Office should be secured as soon as there are sufficient funds available for that purpose.

In conclusion your Board respectfully submit that they have done their best to publish as good a Journal as the funds would permit, and they have pleasure in stating that the available resources of THE JOURNAL are now such that their intention is for the next and succeeding years, to raise the professional and literary standard of its editorial department to the equal of any.

JOHN B. HAMILTON, Secretary. P. O. HOOPER, President.

On motion it was received and adopted.

Dr. W. H. Wathen, Chairman, read the report of the Committee on Nominations:

The Nominating Committee begs to make the following report:

For President, Dr. H. O. Marcy, of Boston, Mass.; First Vice-President, Dr. Willis P. King, of Missouri; Second Vice-President, Dr. Henry Palmer, of Wisconsin; Third Vice-President, Dr. W. E. B. Davis, of Alabama; Fourth Vice President. Dr. W. E. Taylor, of California; Treasurer, Dr. Richard J. Dunglison, of Pennsylvania; Secretary, Dr. W. B. Atkinson, of Pennsylvania; Librarian, Dr. Geo. W. Webster, of Illinois; Trustees, Dr. W. W. Dawson, of Ohio, Dr. W. W. Potter, of New York, Dr. J. H. Rauch, of Illinois.

Judicial Council—Dr. H. O. Walker, of Michigan, to fill vacancy; Dr. W. T. Bishop, of Pa.; Dr G. L. Porter, of Conn.; Dr. Jas. F. Hibbard, of Ind.; Dr. C. H. Hughes, of Mo.; Dr. Hunter McGuire, of Va.; Dr. A. M. Owen, of Ind.; Dr. H. D. Didama, of New York.

Place of meeting 1892—Detroit, Mich.; time of meeting first Tuesday in June.

Chairman of Committee of Arrangements, Dr. H. O. Walker, Detroit, Mich.; Address on General Medicine, Dr. J. S. Cain, of Tennessee; Address on General Surgery, Dr. John B. Hamilton, of Washington, D. C.; Address on State Medicine, Dr. C. A. Lindsley, of Conn.

Committee on State Medicine—J. Cochran, Ala.; T. E. Murrell, Ark.; Luke Robertson, Cal.; T. H. Crothers, Conn.; J. R. Logan, N. Dak.; R. G. Ellegood, Del.; S. S. Adams, D. C.; R. J. Nunn, Ga.; J. P. Wall, Fla.; Harold N. Moyer, Ill.; J. F. Hibbard, Ind.; H. Wright, Iowa; W. L. Schenck, Kans.; H. Horace Grant, Ky.; C. B. Belt, Mass.; A. J. Stone, Minn.; W. F. Breakey, Mich.; W. Johnson, Miss.; Young H. Bond, Mo.; Thos. Wood, N. C.; Alfred F. Carroll, N. Y.; G. P. Conn, N. H.; Goldberth, Neb.; R. Harvey Reed, O.; L. F. Flick, Pa.; A. A. Moore, S. C.; J. P. Walker, Tenn.; R. M. Swaringen, Tex.; J. H. Hamilton, Vt.; R. N. Martin, Va.; A. F. Stifel, W. Va.; Geo. M. Steele, Wis.; J. R. Matos, La.; G. S. Beardsley, U. S. A.; W. Wyman, U. S. Marine-Hospital Service.

Committee on Necrology—J. T. Searcy, Ala.; G. W. Hudspeth, Ark.; W. K. Lindley, Cal.; G. R. Shepperd, Conn.; L. P. Bush, Del.; J. M. Toner, D. C.; J. D. Fernandez, Fla.; G. W. Bailey, Ga.; E. P. Cook, Ill.; J. L. Thompson, Ind.; Brown, Iowa; W. F. Sawhill, Kan.; John G. Brooks, Ky.; Asa S. Potter, Mass.; R. C. Levensaler, Me.; A. B. Anker, Minn.; W B. Alvord, Mich.; B. F. Ketrel, Miss.; J. D. Griffith, Mo.; W. M. Knapp, Neb.; H. Capehart, N. Dak.; N. Jacobsen, N. Y.; J. J. Berry, N. H.; S. S. Thorne, Ohio; Jacob Price, Pa.; F. P. Porcher, S. C.; F. M. Sim, Tenn.; W. H. Wilks, Tex.; Edw. R. Camden, Vt.; L. E. Harvey, Va.; Dr. Wilson, W. Va.; H. V. Faville, Wis.; Jas. M. Flint, U. S. N.

Committee of Pan American Medical Congress—R. F. Saunders, Ala.; Ed. Bentley, Ark.; W. R. Cluness, Cal.; C. A. Lindsley, Conn.; E. M. Darrow, N. Dak.; C. H. Richards, Del.; D. W. Prentiss, D. C.; C. R. Oglesby, Fla.; James McFadden Gaston, Ga.; N. S. Davis, Ill.; A. M. Owen, Ind.; H. B. Crowley, Ia.; J. P. Minney, Kan.; J. N. McCormack, Ky.; S. T. Chaillé, La.; Augustus P. Clarke, Mass.; P. H. Millard, Minn.; C. H. Leonard, Mich.; Dr. Kendell, Miss.; I. N. Love, Mo.; Jno. Cronyn, N. Y.; Irvin A. Watson, N. H.; R. C. Moore, Neb.; Chas. A. L. Reed, Ohio; Wm. Pepper, Pa.; R. A. Kinloch, S. C.; J. R. Buist, Tenn.; J. W. Carhart, Tex.; Henry W. Holton, Vt.; J. S. Wellford, Va.; Jas. H. Brownfield, W. Va.; Jas. P. Reed, Wis.

GEORGE W. WEBSTER, Secretary.
WM. H. WATHEN, Chairman.

The announcement having been made that Dr. S. C. Wood, of N. Y., nominated for Judicial Council, was dead, on motion the name of Dr. H. D. Didama, of N. Y., was substituted.

Dr. H. O. Walker, of Mich., moved to strike

out Hot Springs, Ark., as the place of meeting and insert Detroit, Mich.

After some discussion, Dr. Simmons, of Cal., moved to insert San Francisco, Cal. On motion of Dr. Caren, Ill., this was laid on the table.

Dr. Pawling, Neb., moved to insert Omaha, Neb. This was laid on the table.

A motion of Dr. J. M. Keller, Ark., to recommit the whole report was laid on the table.

Detroit, Mich., was then adopted as the place of meeting by a vote of 143 to 105.

Dr. C. W. Brown having named Dr. W. W. Potter, N. Y., as ineligible for Trustee by reason of non-affiliation with the Association, by the suggestion of Dr. N. S. Davis, Ill., the matter was referred to the Judicial Council.

The whole report on nominations as amended was then adopted by a large vote in favor.

Dr. X. C. Scott, Ohio, named Dr. H. O. Walker, of Mich., as Chairman of the Committee of Arrangements, in place of Dr. J. M. Keller, of Ark. Another nominee having been named as ineligible, Dr. I. N. Love, Mo., demanded the objection.

A motion by Dr. F. Woodbury, Pa., to refer this also to the Judicial Council was negatived.

The place of meeting requiring it, on motion of Dr. N. S. Davis the time was changed from first Tuesday in May to June.

Dr. J. M. Mathews, Kentucky, read the *Address in Surgery*. (See page 654.)

Dr. W. F. Horner, U. S. A., Va., offered the following which was adopted:

WHEREAS, The Code of Ethics of this Association declares, Art. ii, "The benefits occurring to the public directly and indirectly from the active and unwearied beneficence of the profession," but———since its original organization has never considered any provision for the widows and orphans of deceased Fellows.

WHEREAS, The success in the formation of Medical Aid Associations in our large cities and in one or more of the States of our Union has proved a practical scheme to succor the families of many a brother physician, stricken down in the midst of apparent success, who otherwise would be unprovided for.

Therefore, be it resolved, That a Committee be appointed by the President of this Association to consider and report upon the expediency and practical advantages of a "Section of Benevolence" in connection with the work and aims of the Association, which seeks to ameliorate not only human suffering and to cure disease, but to enlarge the influence of the profession by showing regard for the needs of the widows and orphans of our deceased brethren.

The Permanent Secretary read the report of the Committee on a Secretary of Public Health.

REPORT OF THE COMMITTEE ON THE QUESTION OF A CABINET APPOINTMENT OF A SECRETARY OF PUBLIC HEALTH.

The committee appointed to consider the question of petitioning the next Congress on the creation of a Medical Secretary of Public Health, beg leave to present their views, and a resolution, for your adoption.

The undersigned believe that the time has come when the medical profession is under solemn obligation to seek all the places and positions in the State that will promote a higher degree of public usefulness than we now enjoy. There is no other profession that excels ours in positive efficiency to sustain public order, comfort and virtue. We possess vast capacity for the direction of society and promotion of human happiness. There is nothing in the body or mind of man that is not in the purview of medical practice. We are laboring unceasingly to assuage the ills of individuals and communities.

At this time the profession is manifesting, in a higher spirit than ever before, the purpose of suppressing contagious and infectious diseases. This work was begun by Jenner a century ago, and the awful scourge of small-pox has been stamped out wherever vaccination is compulsory. We have now assumed the stupendous task of suppressing all the terrible diseases that desolate the world.

There are infectious and epidemic diseases that move about the world, almost periodically, which we need not particularize; they are often the products of the squallor and wretchedness of peoples, and are spread far and wide about the lines of commerce. These invisible foes infest the air, the waters, and the very food we eat. From the grosser foes of human health, cold, heat and tempest, men have power to defend themselves; but in regard to these invisible agents of suffering and death, for want of higher knowledge, they are largely helpless. In their despair they turn to medical science for help, unwilling to trust in the brute law of the survival of the fittest.

Governments, in a certain way, have always done something to aid medical men in their endeavors to stay the pestilence and save the afflicted; but never adequately. They have generally refused to make the medical profession a permanent integral part in the administration of the State; that is, in the making and the execution of sanitary laws.

What laws are necessary for the full employment of our beneficent profession? We reply: those that relate to the social state of the people for the prevention of disease. They comprehend an amplitude and purity of water supply, proper dwellings for the lower classes without overcrowding or deficiency of light and air, unadulterated food, complete drainage and disinfection of excrement, the preservation of rivers and smaller streams of water from pollution, the regulation of the hours of labor, the protection of childhood from the imposition of toil, and their proper education, cleanliness of streets and planting of shade trees for protection from intense solar heat, and the decomposing power, by their leaves, of deleterious gases and miasms; the establishment of

public baths, the operations of quarantine to prevent invasion of pestilence and landing of immigrants with diseases dangerous to others, the isolation of persons attacked with infectious disease and the disinfection of localities, the construction and management of general and special hospitals, the care of the sick poor in their homes, the prevention of consanguineous marriages and of those who have destructive types of constitution, the warning of society of the evil consequences of abuses of the brain, the material basis of consciousness, whereby a free will is impaired and the sufferers become irresponsible and are often mentally ruined; and, lastly, the regulation of those two giant evils of civilization, intemperance and prostitution.

We affirm that all the measures for public relief on these important subjects should be under the guidance of medical men.

It is not the mere knowledge of the human frame as a diseased thing, or a mechanism, that should give us highest consideration in the State, but rather our capacity to prevent sickness by securing the proper administration of the laws of health. At present we occupy positions but little better than mere advisers to authoritive bodies; our soundest suggestions are at the mercy of ignorance and prejudice of uninformed legislation. The medical profession holds itself ready not only to diminish the fearful destruction of life now going on, but ultimately to destroy the contagia that cause it. It is now becoming generally known that infectious diseases and toxic elements are disseminated in food. An infectious disease in the family of a dairy-man may be as widely diffused as his distribution of milk. The pollution of streams of water and wells about towns, villages and farmers' homes, we know definitely, subject many families to tedious and destructive diseases, which our wise sanitation can overcome, if we possessed the power to so act. It will be well for the State when the medical profession is represented in the councils of the Nation as weightily as can be assumed by official places and conferred dignities

It seems to your committee that this is a propitious period for entering upon a forward movement that will place our profession in its true relation to public affairs; and that the first and most important step to obtain this end, is to appeal to Congress to create the office of a Medical Secretary of Public Health.

The latest addition to the Cabinet of the President is that of Secretary of Agriculture, and already a great impulse to higher intelligence has been inaugurated by the practical farmer who is at its head.

What part will a Secretary of Public Health play, when he takes his place in the Cabinet? Will he be a mere figure head, or will he be able to fulfil important duties to the State? The answer is, he will, by virtue of his position, justly form an integral part of the councils of the State; he will represent the medical consciousness of the Nation, and be one to whom we all can look for the exploitation of measures that will direct continuous scientific and collective investigation, in regard to endemic as well as epidemic diseases that afflict the people; he will be able to coöperate, coördinate, unify and utilize, in the discharge of his duty, all the work of State Boards of Health, now so well organized in various States of the Nation; and these in turn will find themselves strongly reinforced by the example and authority of a great central officer who will be equal in function and opportunity with the other members of the President's Cabinet.

It must be acknowledged that the Government, through the operations of the Surgeon-General of the Army, Navy, and Marine Department, and by the action of the Secretary of State, has authorized most liberal expenditures for the establishment of the National Medical Library and Museum, the issue of the incomparable Index Medicus, and for original researches at home and abroad on the origin and nature of the fearful epidemic brought to our shores by immigrant and other ships. Honorable mention is due to Surgeon George M. Sternberg, of the U. S. Army, for his investigations in regard to yellow fever, and to Dr. E. O. Shakespeare, of Philadelphia, for his study in India and Spain of Asiatic cholera under the patronage of Secretary Bayard; of the establishment of scientific posts by the Surgeon-General of the Marine-Hospital Service at Dry Tortugas for the special and continuous investigation of the causes of yellow fever, and the Bacteriological Laboratory attached to U. S. Marine-Hospitals at New York, and to the Surgeon-General of the Navy for the Navy Museum of Hygiene, in whose laboratories chemical analyses of water and food, as well as bacteriological research, are constantly going on.

The more recent enactment of the Inter-State Quarantine Act as, truly, says Dr. Walter Wyman, of the Marine-Hospital Service in Washington, marks an epoch in the history of national health legislation. The Conventions in the quarantine service, in the last few years have secured great progress towards a uniformity in quarantine laws in time of epidemic visitation. Also an extensive correspondence has been established by the Marine-Hospital Surgeon with our Consuls every where, so that our quarantine service is constantly advised of the prevalence of epidemics in countries with which we are closely connected in a commercial way.

A Secretary of Public Health, by the aid of associated departments, can be constantly informed of the prevalence of epidemic disease in all the localities of our country, and could give public warning to all who might be exposed to

them, and thus the people will be assured that a competent Minister of State surveys the whole field. He will also be able to render important assistance to Army, Naval and Marine Surgeons, by the fact that their respective Cabinet officials cannot be in professional touch with them, as would be a Secretary of Public Health.

We can all recall what this Association accomplished for the elevation in rank and pay of the Army and Naval Surgeons from the lower plane on which they stood. It was not through the active support of the President or his Cabinet; but it was only due to the appeal of this Association directly to Congress. This same effort is now being made through the British Medical Association to obtain higher rank to the medical arm of the Army and with fair hopes of success.

The question of higher medical education must also occupy a Secretary of Public Health. We all know the great progress on this line that has been made in the last twenty years. A more thorough preliminary education is now demanded by our best medical schools for matriculation; moreover, diplomas no longer give in some States a right to practice medicine. We need uniform laws on this subject in all the States, and such legislation can be greatly promoted by a Cabinet officer. If it be possible to compass this there should be a universal law that no man or woman or special sect of physicians, regular or irregular, and no specialist shall lawfully practice medicine or surgery until they have given satisfactory proof before a Board of Examiners that they have had an adequate training in medicine and surgery. In this way it is reasonable to expect that at length a race of Physicians will be developed who will secure universal respect because they will be regarded as amongst the best educated persons in a community.

The only true way of suppressing quackery among regular or irregular practitioners is by higher education. Thus the medical profession has gradually unfolded itself in the procession of the ages, and will continue to grow stronger and brighter with the progress of civilization.

It is perfectly plain that a Medical Secretary of State will be as fully employed as any other officer of the State, and his duties will increase all the time. It is a well-known biological law, that organs grow to conditions of capacity as they are continuously exercised. The muscular system and all the organs thus increase up to a condition of status; so will the functions of the proposed officer grow broader and stronger in adaptability to the needs of the people and the greater efficiency of our profession, also to this Association, which, whatever it may have achieved, is still upon the threshold of its beneficent mission to our country.

His annual reports will command universal attention, as they will contain everything of importance in medical progress.

Finally, the unification of all things relating to public hygiene in the States through the aid of State Boards of Public Health, will give a solidity and usefulness to the practice of medicine never hitherto attained.

We ask for the adoption of the following resolution:

Resolved, That the President of this Association appoint a committee of five to memorialize Congress, at its next session, on the subject of creating a Cabinet officer to be known as the Medical Secretary of Public Health.

All of which is respectfully submitted.

C. G. COMEGYS, Ohio.
T. G. RICHARDSON, Louisiana.
N. S. DAVIS, Illinois.

On motion of Dr. J. F. Hibberd, Indiana, the report was received and the resolution was adopted.

Committee—Drs. C. G. Comegys, Ohio; J. C. Culbertson, Ohio; W. T. Briggs, Tennessee; J. F. Hibberd, Indiana; and Wm. B. Atkinson, Pennsylvania.

Dr. I. N. Quimby, New Jersey, offered the following amendment:

WHEREAS, More time is needed in the various Sections to enable the same to get through with their generally *overburdened* duties; and whereas one of the morning sessions, say *Thursday*, could be omitted without any detriment to the general good of the Association, I hereby offer the following amendment to the by-laws: That *Thursday morning's* general session be *omitted* and the time be devoted to moving Sectional work.

Laid over under the rules till next year.

Dr. Quimby offered the following, which was adopted:

WHEREAS, About $1,800 or $2,000 has been contributed towards the Rush Monument Fund, which amount is on deposit without interest, therefore be it

Resolved, That this Association direct its Chairman, Secretary, and Treasurer of said fund to be constituted a committee of investment, who are hereby empowered and directed to invest said sum at interest in *good first* mortgage, real estate security, or other *first-class securities*.

VOTE OF THANKS TO THE EDITOR AND BUSINESS MANAGER.

Dr. R. Harvey Reed, Ohio, offered the following:

WHEREAS, THE JOURNAL has been successfully and satisfactorily conducted during the past financial year, enabling the Treasurer of the Association to report the largest balance in the history of the Association, of over $5,000, being an increase of nearly 100 per cent. over the preceding year; and

WHEREAS, This success has been largely due to the united and energetic efforts of our Editorial and Business representatives at Chicago; be it therefore

Resolved, That the thanks of this Association be, and are hereby given Dr. John H. Hollister, the Supervising Editor, and Mr. J. Harrison White, the Business Manager; and be it further

Resolved, That this Association cordially recommend to its Board of Trustees the retention of the services of these gentlemen for the present year.

A motion by Dr. Kendall, Illinois, to lay this on the table was negatived.

After much discussion, on motion of Dr. H. D. Holton, Vermont, it was agreed that nothing in this action should be construed as mandatory upon the Board of Trustees.

Dr. Pancoast, of Pennsylvania, made the point of order, with all respect to the President and every faith in the honor of the delegates to the Association, that from a parliamentary standpoint, the President and the Association cannot tell whether the vote just passed was a legal one according to our By-laws, as the roll of delegates was not called.

President Briggs replied, that the decision of the chair could be appealed from.

Dr. Pancoast declined to do so, saying that he did not wish to consume time, and as the Permanent Members are not allowed to vote, he would not appeal to a meeting composed only of delegates.

Dr. J. S. Marshall, Chairman, read the

REPORT OF THE COMMITTEE ON CONFERENCE OF SECTIONS.

Your Committee of Conference of Sections appointed in consonance with the resolution of Dr. Connor, passed by the Association on Tuesday morning, beg leave to report as follows: That owing to the limited time at their disposal, and the greatness of the task imposed upon them, they have been unable to perfect a plan for the improvement of the scientific work of the Sections and the strengthening of the weak ones, that seemed at all satisfactory to your Committee. As a beginning, however, in this direction, your Committee recommend the passage of the following resolutions:

Resolved, That a committee of five be appointed by each Section to supervise and revise papers submitted to the Sections, and to perform such other duties as may be directed by the Section; of this Committee the Chairman and Secretary of the Section shall be *ex officio* members.

Resolved, That the Committee of Conference of Sections ask to be continued, that the work already begun may be further perfected.

On motion, the report was received and the resolutions were adopted.

Dr. J. G. Kiernan and Dr. H. St. Clair Ash, Pennsylvania, offered the following amendment to the By-laws:

Resolved, That the Committee of Necrology be abolished, and the work of that committee be made the duty of the editor of THE JOURNAL.

Dr. W. W. Parker, Virginia, offered the following:

Resolved, That the next meeting of this Association consider the propriety of electing a practical chemist of well-known skill and high character, who shall as soon as may be begin the analysis of the various nostrums now on the market and that may hereafter appear, and publish the result in THE JOURNAL of the Association, or in an independent journal under the name of *The Moral Detective*, or *Medical Examiner*, or such other title as the Association may select, and for his compensation a tax of fifty cents per annum shall be assessed upon each member of this Association. The chemist so elected shall have the privilege of issuing the journal to other persons, not members of this Association, upon such terms as he may think proper.

On motion this was laid on the table.

On motion the Association then adjourned.

(*To be concluded.*)

MISCELLANY.

A WORD TO AURISTS.—An invitation is given to all aural surgeons to send a brief statement of their views and experience concerning the operation for excision of the drum head or ossicles. A prompt contribution to this consensus of opinion, for early publication, will be appreciated. Address S. S. Bishop, 70 State St., Chicago.

Other journals are invited to insert this notice.

THE BRITISH GYNECOLOGICAL SOCIETY.—The meeting of this Society will be held at Newcastle-on-Tyne on June 18 and 19, under the presidency of Dr. Robert Barnes. The meetings, which will be held in the College of Medicine, will be open to all registered medical practitioners. A public dinner will be held on the evening of the first day. All communications should be addressed to the General Local Secretary, R. C. Bennington, M.B., 59 Osborne Road, Newcastle-on-Tyne.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from May 2, 1891, to May 8, 1891.

First Lieut. Julian M. Cabell, Asst. Surgeon, is relieved from duty at Ft. Niobrara, Neb., and will report in person to the commanding officer, Ft. Buford, N. Dak., for duty at that post, relieving Major Valery Havard, Surgeon. Major Havard, on being relieved by Lieut. Cabell, will report in person to the commanding officer, Ft. D. A. Russell, Wyo., for duty at that post. Par. 14, S. O. 102, A. G. O., May 5, 1891.

Capt. Guy L. Edie, Asst. Surgeon, is relieved from duty at Ft. Douglass, Utah, and will report in person to the commanding officer, Ft. Niobrara, Neb., for duty at that post, relieving Major T. E. Wilcox, Surgeon. Major Wilcox, on being relieved by Capt. Edie, will report in person to the commanding officer, Ft Huachuca, Ariz., for duty at that post. Par. 14, S. O. 102, A. G. O. May 5, 1891.

Capt. William P. Kendall, Asst. Surgeon, relieved from duty at Ft. D. A. Russell, Wyo., and will report in person to the commanding officer, Ft. Douglass, Utah, for duty at that post. Par. 14, S. O. 102, A. G. O., May 5, 1891.

Capt. Walter D. McCaw, Asst. Surgeon, is relieved from duty at Ft. McPherson, Ga., and will report in person to the commanding officer, Camp Pilot Butte, Wyo., for duty at that post, relieving Capt. George E. Bushnell, Asst. Surgeon. Capt. Bushnell, on being relieved by Capt. McCaw, will report in person to the commanding officer, Ft. McKinney, Wyo., for duty at that post. Par. 14, S. O. 102, A. G. O., May 5, 1891.

First Lieut. Joseph T. Clarke Asst. Surgeon, is relieved from duty at Ft. Riley, Kan., and will report in person to the commanding officer, Camp Poplar River, Mont., for duty at that station, relieving First Lieut. Jefferson D. Poindexter, Asst. Surgeon. First Lieut. Poindexter, on being relieved by Lieut. Clarke, will report in person to the commanding officer, Ft. Niobrara, Neb., for duty at that post. Par. 14, S. O. 102, A. G. O., May 5, 1891.

Capt. Louis A. La Garde, Asst. Surgeon, is relieved from duty at Ft. Assiniboine, Mont., and will report in person to the commanding officer, Ft. McHenry, Md., for duty at that post, relieving Major Charles B. Byrne, Surgeon. Major Byrne, on being relieved by Capt. La Garde, will report in person to the commanding officer, Ft. Assiniboine, Mont., for duty at that post. Par. 14, S. O. 102, A. G. O., May 5, 1891.

Major Joseph B. Girard, Surgeon, is relieved from duty at Alcatraz Island, Cal., and will report in person to the commanding officer, Benicia Bks., Cal., for duty as Post Surgeon at that post, and Attending Surgeon at Benicia Arsenal, Cal., relieving Major John H. Janeway, Surgeon. Major Janeway, on being relieved by Major Girard, will repair to Philadelphia, Pa., and assume the duties of attending surgeon and examiner of recruits in that city, and in addition to his duties in Philadelphia, will perform the duties of Post Surgeon at Frankfort Arsenal, Pa. Par. 14, S. O. 102. A. G. O., May 5, 1891.

By direction of the Acting Secretary of War, par. 5, S. O. 24, January 29, 1891, from this office, granting Major Julius H. Patzoki, Surgeon, six months' leave of absence, is so amended as to grant said leave on surgeon's certificate of disability. Par. 15, S. O. 99, A. G. O., May 1, 1891.